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UNIVERSITY OF PENNSYLVANIA BULLETIN

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PROCEEDINGS

OF

UNIVERSITY COUNCILS

February 6, 1924—February 16, 1924

UNIVERSITY DAY

February 22, 1924

BACCALAUREATE SERMON

June 15, 1924

COMMENCEMENT DAY

June 18, 1924

CREDENTIALS OF CANDIDATES GRADUATE SCHOOL

February 14, 1924—June 4, 1924

Founded 1740

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I.—The Moore School of Electrical Engineering

EXERCISES AT THE FORMAL OPENING OF THE SCHOOL,

February 6, 1924

More than one thousand engineers, together with many alumni and friends of the University, participated in the formal opening of the Moore School of Electrical Engineering on Wednesday, February 6, 1924, at three o'clock. The event was made a part of the program of the American Institute of Electrical Engineers, which was holding its fortieth annual convention in Philadelphia.

In honor of the event the University bestowed the honorary degree of Doctor of Laws upon four of America's most distinguished electrical engineers and the degree of Doctor of Science upon two members of the engineering faculty. For this purpose there was a special convocation in Weightman Hall. Those who received the degree of Doctor of Laws were Elihu Thomson, famous consulting engineer with the General Electric Company and a pioneer in the development of various electrical apparatus; Edward Weston, president of the Weston Electrical Instrument Company; Frank Julian Sprague, inventor of the multiple unit system of electric train control; and John J. Carty, vice-president of the American Telephone and Telegraph Company. Those who received the degree of Doctor of Science were Dean Harold Pender, of the Moore School of Electrical Engineering, and Dr. Robert J. Fernald, professor of mechanical engineering.

President Josiah H. Penniman presided at the exercises in Weightman Hall. The two speakers were Herbert Thacker Herr, vice-president of the Westinghouse Electric Company, and Dr. Arthur M. Greene, Jr., dean of the school of electrical engineering at Princeton University.

The Programme of Ceremonies was as follows:

ACADEMIC PROCESSION

INVOCATION—CHAPLAIN OF THE DAY

Reverend Alexander MacColl

INTRODUCTION BY PRESIDENT PENNIMAN

PRESENTATION OF PORTRAIT OF ALFRED FITLER MOORE

Mr. George Stevenson

MUSICAL INTERLUDE

ADDRESS—Mr. Herbert T. Herr

"The Electrical Engineer and His Relation to the Progress of the World."

ADDRESS—Dr. Arthur M. Greene, Jr.

"Engineering Education—Its Present State and Ideals"

CONFERRING OF HONORARY DEGREES

BENEDICTION—CHAPLAIN OF THE DAY

POSTLUDE

INTRODUCTION

By President Josiah Harmar Penniman

After the invocation by the Rev. Dr. Alexander MacColl, Dr. Penniman introduced George Stevenson, a lifelong friend of Mr. Moore, and one of the Trustees of the Moore School as provided in his will, who presented to the University a portrait of Mr. Moore in behalf of Mr. and Mrs. William Verner. Dr. Penniman said:

This is an important day in the history of education in America. The dream of a distinguished citizen of Philadelphia is now a reality. The late Alfred Fitler Moore made provision in his will for the founding of a School of Electrical Engineering to be located in Philadelphia, and to bear the name of the Moore School of Electrical Engineering, in memory of his parents. The trustees of the estate, in order to carry out in worthy manner the will of Mr. Moore, invoked the Orphans' Court for approval of a plan whereby the existing course in Electrical Engineering at the University of Pennsylvania might, with the concurrence of the trustees of the University, become the Moore School. The Court approved the plan as presented, after agreement to the terms of it by the trustees of the University and the trustee of his estate, who was instrumental, in co-operation with the other trustees, in bringing about in a manner approved by the Court, the creation and endowment of the new School on the foundation of the existing course at the University. Mr. Stevenson will present on behalf of Mr. and Mrs. William R. Verner a portrait of the late Alfred Fitler Moore.

ADDRESS

By George Stevenson

In presenting the portrait of Alfred Fitler Moore Mr. Stevenson spoke as follows:

Mr. President, Ladies and Gentlemen: I must say that I feel highly honored that I have been asked to present to the University of Pennsylvania, and before such a distinguished audience, this picture of my friend, Mr. Alfred Fitler Moore.

Mr. Moore was, for a number of years, engaged in the business of manufacturing and selling insulated wire of all kinds, from the large, heavily coated cable down to the smallest in use. Of course, this wire was almost exclusively used in the fast growing field of electrical engineering.

The picture is the gift of the nearest surviving relative of his widow.

Mr. Moore was a prudent and exceedingly intelligent business man, and during his lifetime he had accumulated quite a fortune. His only child died in infancy, and when he himself passed away he left only his widow, of his immediate family.

Besides his qualities as a business man, he was broad-minded, sympathetic and liberal. By the terms of his will he constituted a trust for the benefit of his widow during her lifetime, with the stipulation that after her decease the trustees of his estate, of which I happen to be one, were to establish, under the terms of the will, The Moore School of Electrical Engineering, for the purpose of properly instructing young men in the science of electrical engineering and its cognate branches. I notice he didn't mention the young women. They were not so much in evidence when he made that will as they are now.

Mrs. Moore passed away in January, 1923. The trustees of the estate were aware that frequently when money is left for the purpose of establishing a school or some eleemosynary institution a large part of the principal is consumed in the erection of buildings and in the overhead charges, in this way limiting to a large extent the usefulness of the bequest. I have, in my experience, known several instances of that, where people have left money to establish a school and there wasn't even enough money to start it.

Now, the trustees of the estate looked around for some way in which they might conserve the principal and the income and thus secure a larger sum of money for the support of the school.

As I came up the stairs over there in Houston Hall I saw on the wall a tablet which said that the University was founded by

Benjamin Franklin. The trustees were aware of that fact; also aware of the fact that Benjamin Franklin was a very early investigator in the field of electricity.

Consequently, after considering all the facts and circumstances which I have stated, they decided there was no better place to put this great school of electricity than in the University of Pennsylvania, our own home institution, that University established by Benjamin Franklin.

Therefore, they turned over to the University, in a manner conforming to the provisions of the will, all of the principal and accrued interest in their hands. The principal is quite large, the income of ample proportions; I am happy to state there will be no money spent for the erection of buildings: the University has provided them. There may be some small expense for alteration. I am also happy to say that there will be no overhead charges of any consequence, which is in accordance with the plan of the trustees.

Our trustees feel they ought to be congratulated, and they do congratulate themselves, that they have been enabled to place this great School under the care of the University of Pennsylvania.

Mr. President, in presenting this picture of Mr. Moore to the University of Pennsylvania, it is with the hope, the wish, and I know it is the intention, that there should be established here in our own University one of the greatest schools of electrical engineering in America, which shall always keep abreast of the present and future growth of the science of electrical engineering and its cognate subjects.

Perhaps I ought to say one word more—I used the term "our own University:" It is my misfortune I am not an alumnus of the University; but I am a citizen of Philadelphia, born and bred here, and nothing that concerns the University of Pennsylvania do I deem a matter of indifference to me.

TRIBUTE TO WOODROW WILSON

At this point Dr. Penniman said:

Ladies and Gentlemen, the mortal remains of Woodrow Wilson, formerly President of the United States of America, are probably at this moment being carried reverently and in solemn ceremony through the gateway leading to the cathedral on Mount Saint Baldwins, in the City of Washington, where, in an especially prepared place, they rest in the crypt.

He bore unfalteringly the burdens of the presidency, multiplied many fold by the fact that this nation, with other nations, was engaged in a titanic conflict for supremacy between two ideas which threatened to divide the world.

Out of respect for the memory of this great American we pause in our exercises, and I ask you to rise and stand for a moment or two with bowed heads in silence.

The audience thereupon rose and stood with bowed heads.

ACCEPTANCE OF THE PORTRAIT OF ALFRED FITLER MOORE

Dr. Penniman then said:

Mr. Stevenson, on behalf of the University of Pennsylvania I accept this portrait at your hands, in the name of the donors thereof; and I desire to express, on behalf of the corporation, and as their representative, their profound gratitude to the testamentary trustees of the estate of the late Alfred Fitler Moore for their generous conception which has resulted in the great enrichment of this ancient seat of learning and in the commemoration in a worthy manner, as desired by the testator, of the memory not only of him but of his parents, which he so desired, with tender filial love, to be perpetuated in the name of the great science whose name is attached to The Moore School.

INTRODUCTION

After a musical interlude Dr. Penniman said:

We have invited as our speakers this afternoon two distinguished men, to present to you in their addresses two aspects of electrical engineering as they present themselves to the world and in the world.

The first speaker is Mr. Herbert T. Herr, graduate of Yale University, a distinguished engineer and the contributor of valuable inventions in locomotive equipment and in turbine engines. In business he is Vice-president of the Westinghouse Electric and Manufacturing Company.

Mr. Herr will speak to us on the subject, "The Electrical Engineer and His Relation to the Progress of the World."

ADDRESS

"The Electrical Engineer and His Relation to the Progress of the World."

By Herbert Thacker Herr

We are assembled here this afternoon to open formally the Moore School of Electrical Engineering. The purpose of this school is to train young men in the electrical engineering profession, which, although in its infancy, has made noteworthy progress since its inception a comparatively few months ago. It is altogether a fitting tribute to the memory of the late Alfred Fitler Moore that this school should be dedicated to his name as a distinct division of that great institution, the University of Pennsylvania, which has contributed so many brilliant sons to the progress of the world's work.

The electrical industry needs and welcomes schools of this order. A requirement of the industry is men with minds trained in this special branch of engineering to assist in the solution of problems now before us and those that will mature in the future development of the electrical art.

"The Relation of the Electrical Engineer to the Progress of the World" is a large subject. Its treatment requires, first, a retrospective view by which we may freshen our memories of the past; second, a consideration of the present conditions of human environment with relation to the electrical art, and, third, a contemplation of what the future may have in store for the electrical industry.

Let us first consider the past: Some three thousand years ago Tutankhamen, a Pharaoh, was entombed surrounded by his worldly goods, apparently in the belief that his spirit would have need of those material things to perpetuate his disembodied soul. Through the superstitions of this king archæology has been enriched and the Pharaoh's relics have revealed new knowledge of the art, manners and customs of the time when Egypt enjoyed the zenith of her power and glory.

One hundred years makes little difference in reckoning the date of Tutankhamen's burial. Speculation can easily span that period of time in any consideration of the subject. The cycle of events that then occurred is so remote from us and so unmarked by great material achievement that a century of time ceases to convey any sense of proportion.

From the boyhood of our grandfathers down to the present day spans only a century of time, but this period has witnessed the most stupendous advance in material civilization that the world has yet known.

Until the insistence of Francis Bacon was accepted—that man is the servant and interpreter of nature, that truth is not derived from authority and that knowledge is the fruit of experience, all history, as far as material progress is concerned, is a story of human energies dissipated and natural resources undeveloped and unused. Bacon's emphasis in analyzing and testing the old, accepted facts of nature by the experimental method, sowed the seeds that developed the great material growth of civilization to full fruition in the nineteenth century.

From the time of the ancient Egyptians down through the Dark Ages men were primarily engaged in forcing various religious and political beliefs on the human race. Constant turmoil and wars of conquest were the inevitable result. In the Egyptian, Greek and Roman civilizations material progress was made principally along architectural and constructional lines. Much of the ancient philosophy lay dormant for centuries and very few inventions useful to man were made until through a desire for truth the reasons for natural phenomena were cross-examined and the secrets of nature could no longer be withheld.

On the principles established by such pioneer investigators and original thinkers the great material progress of the nineteenth century was founded. After them came the men of applied science to give the world devices operating on the principles and laws enunciated.

In the long list of noted American inventions the lightning rod by Franklin in the middle of the eighteenth century is the earliest. His research on electrical phenomena, followed by Galvani, Volta, Ampere, Ohm, Wheatstone and others in the early nineteenth century marked the dawn of electrical development.

Almost simultaneously with the announcement of electrical discoveries came the development of the steam engine for the production of power from the resources of nature, and yet at the time our grandfathers began to look out on life little change in the material environment of civilization had occurred through the ages.

A century ago there was not a railroad in all America or Europe and transportation was conducted by methods no different from those of the ancients.

The steamboat was a doubtful experiment and subject to the ills of all pioneer devices.

Communication was carried on by horse or messenger and people lived without intimate association and in ignorance of events transpiring in other parts of the world. Coal was just coming into use and mineral oil had not yet been discovered. People burned wood to keep them warm in winter. There were no furnaces, no bath-tubs, no hot-water faucets. There were no sewing machines, electric lights, telegraphs, telephones or automobiles; in fact none of the modern conveniences and appliances which we count today as necessities were then available.

The general field of modern mathematics, physics and chemistry was just beginning to be explored. Surgery and medicine did not include anaesthetics, antiseptics and antitoxins. Many subjects now comprised in any college curriculum were still unwritten.

For the first fifty years of the nineteenth century men were busily engaged in applying and developing the mechanical and electrical inventions based on the experience the previous generations had made available through research and pure science. A vast store of knowledge and understanding was beginning to appear, and as investigation feverishly advanced useful devices materialized.

In the electrical field the absolute necessity of a prime mover to generate current was recognized. The steam engine was at hand to supply the need, and power-generating units, consisting of steam engine and electric generator, became available.

The electrical industry began its real commercial advance about fifty years ago, a period well within the recollection of many now living. This development was mainly haphazard, following the lines of least resistance. No one fifty years ago could predict its possibilities and those who did venture to estimate its probable growth were derided as visionaries.

The invention of the incandescent lamp by Edison and his plan for the central generation and distribution of electric current for lighting purposes were of prime importance.

Morse with the invention of the telegraph in 1835 annihilated distance in advancing the important necessity of rapid intercourse, and Bell in 1876 gave us his splendid achievement of the telephone, which with the later developments in wireless telegraphy and telephony have revolutionized the art of communication.

By the Edison system of central station generation and distribution of electric current it became possible to furnish by a wire at any desired point those three prime essentials to material advancement—heat, light and power.

While the central power stations were originally conceived for the purpose of electric lighting, they were soon offering current industrially, for railroads, for street cars and for domestic purposes.

The Edison system of central station generation of power electrically in large quantities made it possible to serve extended areas from a centrally located power station with its transmission and distribution system.

The uses for light, heat and power supplied electrically developed so rapidly in the past twenty years and the amount of current required by our enormous industrial expansion became so great than an excess of demand over supply resulted and the power stations found themselves unable to furnish all the requirements of their customers, notwithstanding a continually increased program of expansion in power station equipment.

This condition obtains today and in spite of the known ability to serve any condition requiring electric energy from central station generating plants, their capacity to do so has not as yet kept pace with the enormous demand for this most useful natural force.

What, then, is our present environment with relation to the electrical art?

The skilful hand, aided and directed by the perceiving eye and the directing mind, the contemplation of the facts revealed in an examination, and the logical arrangement of the phenomena perceived and conceived in any investigation for truth, have given us the knowledge which has permitted the industrial growth we have accomplished in our modern civilization.

The present status of the electrical art could not have materialized without a fair knowledge in other fields of engineering.

In the material advancement of the past century the strong hand of research has gripped innumerable essential facts in nature and by a process of elimination has isolated the important elements on which to found a law or lay down a principle.

Of all the known arts or sciences, electricity is still as obscure as any other. This world of ours is so involved, so wonderful, that the farther we advance into the body of knowledge, the more are we impressed with the relative nature of all facts and phenomena.

The material development we enjoy could not have matured through a great knowledge of one essential division of nature. It has come about rather by the acquisition of some knowledge of many or all of the divisions.

We have reason to believe that relations do exist between certain phenomena. Our human senses, for instance, tell us positively that there is a wide distinction between the electrical parts of a motor and its mechanical construction, and yet no electrical appliance exists that does not combine these two divisions of engineering in some relative proportion. We know that an automobile, essentially mechanical in its construction, would be useless without the electrical equipment to ignite the gas in the operation of the engine. We might manage to get along without the starter and supply the power required for starting by hand-cranking the engine, but the engine would not function without the electric ignition.

No machine, electrical or otherwise, has ever operated successfully with any of its essential parts missing.

Similarly, no one art or science is responsible for our present conditions. Mechanical and electrical engineering have gone hand in hand in the past and must so continue.

With the advent of steam and electricity we have developed means of transportation and communication far beyond the wildest dreams of our forefathers. We cross the continent in less time than our grandfathers required to make a wearisome journey from Lancaster to New York. With an electric locomotive we haul a heavy train over the continental divide and in descending the grade on the east slope of the Rocky Mountains we put as much power back into the line for use elsewhere as was required to ascend the west slope.

Under the earth's surface we are transported in comfortable trains, electrically operated and at speeds unknown a hundred years ago, while above us the streets of a great city are crowded with traffic in a chaotic rush of horseless vehicles. Electrically, we travel for hours submerged in the sea. We change our course and our depth or rise to the surface at will.

We fly from London to Paris in less than three hours, outdistancing the swiftest bird.

By our transportation system we supply the essentials of life to masses of people congregated in huge cities and handle from distant points the raw materials which keep the workers engaged in producing the finished products necessary to our environment.

As the industrial advancement progresses we vastly increase our transportation capacity and efficiency by substituting electric operation for steam. We concentrate in central power stations the generation of power to be fed through a wire to the locomotive units as they require it.

We cross the Atlantic in huge ships more luxuriously appointed than the palace of a king a century ago. We spend five days in rest and comfort in making the journey which would have taken our grandfathers more than a month of tiresome travel to accomplish.

On our state highways we rapidly traverse long stretches of country and become familiar with locations we would never see without our automobiles.

To match this speed and development in transportation and to carry on our daily routine of business we write a telegram in New York to be delivered in San Francisco in an hour.

We carry on conversations with our friends or business acquaintances hundreds of miles away and we hear at will news items, speeches, concerts or lectures carried to us by wireless telephony.

In the heat of summer we cool our rooms with electric fans, or warm our feet on cold nights with an electric heater.

In a hundred ways we use electricity to comfort and aid our daily lives. Its uses in medical treatment and in dentistry are manifold and in the synthetic construction of compounds it has given us materials which even nature herself has not known.

In the realm of domestic science we save labor and promote efficiency by the use of electric current. We cook, sweep, wash, iron and sew with its aid, and perform any task which may involve the use of light, heat or power.

Surely the electrical art holds high rank in our modern civilization! It has become a vital and essential part of our daily lives and its stupendous development has not only revolutionized our environment but has completely changed the method and manner of our living.

What, then, may be the outlook for the future of this impelling force which has made such progress and built a great industry in half a century? How are we to keep pace with the advances in civilization which crowd upon us in ever-increasing number and complexity?

The men who shall lead the future civilization will in some way be associated with the electrical industry. They will be strong men with sound fundamental training such as is to be had in the institution being founded here today. They will have vision and resourcefulness, strength to bear the burdens which will fall upon them and to carry on through all adversity. The way is not clear and the road is not straight or smooth.

The industry today is well started on a firm foundation and is rightfully the pride of those able men who built it. It stands in an advanced position of efficiency. It is serving a great purpose and has become an essential part of our lives. In an art developing with the rapidity which has characterized the electrical industry and with its possibilities of future growth, a long look into the future would be unwarranted.

No one denies the superiority of electricity for lighting. Its use in driving all kinds of industrial and mining machinery has been demonstrated and approved. Its already extensive use in industrial heating is only limited by the industry's ability to develop devices for special application. In metallurgy it is peculiarly adaptable because of the ease with which temperatures are controlled and the ability to cover great temperature ranges. Many chemical compounds, such as carborundum and fertilizer, can be manufactured synthetically only by electricity.

For the operation of household devices and for performing labor-saving functions in the home and on the farm it is already taking a leading place.

The principal factors governing the industry are known with a reasonable degree of accuracy. The possibilities are limited primarily by the ability to generate power cheaply, to transmit and distribute it economically, and to provide the necessary financial means to care for its potential growth.

The central power station has instituted an electric service which is at present principally available in the larger cities. This service is too popular to long be denied the people in smaller cities and in rural districts. To provide these added facilities requires the extension of the central distribution system to the so-called "super-power zones." By this method complete areas of the country can be electrically serviced and all the available water powers combined with huge steam generating plants for the generation and distribution of current in the most economical manner.

A practical transmission system is now available for this purpose and the superpower system is the next large step in the advancement of the industry.

When the superpower system shall become effective the entire population of the United States will have available from a wire and in quantities to meet their every requirement, heat, light and power. If the cost of this energy can be made reasonable there are practically no limits to the electrical industry. Domestic electric heating will then be a reality and all manner of things in and about the home, farm, factory and city will be electrically accomplished.

The growth of the industry has been so rapid that accurate statistics are not easily collected. Even on its present basis the output of the central stations increased approximately 26 per cent in 1923 over the previous year, the gross revenue for the year being $1,300,000,000, with capital investment of $5,800,000,000.

The purchases of electrical appliances and supplies by central station customers, neglecting the effect of superpower conditions, are estimated to reach in five years approximately $12,000,000,000, and in the next ten-year period approximately $28,000,000,000. In this same ten-year period the energy generated by the central stations will triple and the revenue from the sale of current will double.

An outstanding feature of the industry is the fact that since pre-war times the cost of current to the consumer has remained practically stationary, while almost all other commodities have greatly increased in price. This is due primarily to the better load factor of the central station and secondarily to the increase in economy of the prime movers (steam turbines) which generate the current. Still further economies are being made by the increase of steam pressures and temperatures as well as refinements in the design of the machinery. Every indication tends to better and more economical operation in the future with consequent reduction in cost and greater current output. These conditions are cumulative in reducing the cost of power ready to serve the customer and, as power cost is a function of the growth of the industry, no effort will be spared in its future development to take advantage of all opportunities for economy.

The developments in radio will be quite marked. Recently relay stations by means of which broadcasting from a single station can be heard in all America and Europe have been reasonably perfected. Better receiving devices are being developed to eliminate all antenna and ground connections and at the same time give greater sensitivity and selectivity in reception.

A microphone embodying a new principle has been invented. This instrument is to the ear what the microscope is to the eye. We shall in the future undoubtedly have some great developments in the wireless field other than for communication purposes. The art is relatively very young.

It is difficult in so brief a review to clearly state the probable future progress of the electrical industry and its effects on our environment, but with this greatest of natural forces becoming better understood and its necessity in our daily lives already established, it is quite safe to predict its wider application and greater usefulness in the future.

Perhaps we are progressing too rapidly and may pass beyond our capacities to control the vast forces in our mechanical era. There are those who believe our civilization has over-expanded; that our capacity for knowledge is limited and our abilities for bearing responsibilities do not warrant such rapid developments as we are undertaking. It is argued that this advancement cannot continue in the same proportion in the future that has characterized the past three generations. How are our capacities to take on and carry forward the huge responsibilities and burdens the present and future may thrust upon us? We have seen that with each increment of knowledge gained many new problems arise for consideration and solution. How can we master and control all the various functions that must affect our lives?

The founding of this School is a partial answer to these questions.

An electrical engineer was unknown a century ago, but conditions of material progress have required a specialist to cope with this branch of our knowledge. It is conceivable that generations ago one might have acquired a fair proportion of the body of human knowledge, but its boundaries have so expanded and its ramifications so extended that this is impossible today. Specialization is the complete solution of all these questions.

In engineering matters we have been compelled to classify and subdivide. In place of all engineering being concentrated in the civil profession, as was formerly the case, we now have many branches, such as electrical, mechanical, civil, mining, metallurgical, automotive, sanitary, marine, etc.

In dedicating this School to electrical engineering a distinct mark in progress is recorded.

Young men will receive here the principles which are essential in the prosecution of their chosen profession. They will imbibe from the teachings of and associations with the staff of the school that special training necessary to the advancement of human undertakings in their calling. They will go forth into the world equipped to formulate new methods and to govern new fields of endeavor, for

> Through seas of knowledge we our course advance,
> Discovering still new worlds of ignorance.

INTRODUCTION

Dr. Penniman then introduced Dr. Arthur M. Greene, Jr., as the second speaker, welcoming him as an alumnus, for many years professor of mechanical engineering in this University, professor and dean in several other institutions, and now dean of the Engineering School of Princeton University.

ADDRESS

"Engineering Education—Its Present State and Ideals"

By Arthur M. Greene, Jr.

Mr. President, Ladies and Gentlemen: Before speaking on the subject which has been assigned to me, I wish, Mr. President, to extend to you and your colleagues, from the University of Princeton, greetings on this occasion, and many hopes that this School will fulfil the highest desires of you and the trustees. I extend, also, my own greetings, and wish to express the great pleasure it gives me.

The invention of the steam engine and of power-driven machinery about one hundred and fifty years ago and the introduction of manufacturing processes, combined with the political development of the world which had its expression in the French Revolution, led to a new form of education. For centuries the universities had been preparing men for the professions of law, medicine and theology. Philosophy, literature and the sciences received much attention, represented by the works of such thinkers as Bacon, Newton, Descartes, Galileo, Boyle and the Bernoullis. Their works increased the realm of human knowledge, to make possible the great discoveries of science of the nineteenth century. The application of this knowledge for the enjoyment of the human race increased its productive power, diminished its burdens and gave it time for recreation, social intercourse and, as many of us believe, intellectual development. During this period of the eighteenth century the need of schools to prepare men for the application of science to the needs of the civil population was evident. This brought about the establishment of École des Ponts et Chaussées in 1747, Konigliche Sachsische Bergakademie in 1765 at Freiberg, École Polytechnique in 1794 at Paris, Polytechnische Institut in 1815 at Vienna, the Konigliches Gewerbe Institut in 1821 at Berlin, and the Rensselaer School in 1824 at Troy. These were followed by École Centrale des Arts et Manufactures in 1829 at Paris, University College, 1828–29 at London, and the establishment of chairs of civil engineering in many of the older universities. This new form of education was termed "engineering education." It was intended to give to students the knowledge of natural phenomena and laws and from the studies of these to build up sciences through which machines and structures could be designed, built and operated. The roads of Europe and America, the water supplies of cities, the drainage of mines and the hoisting of materials therefrom, the construction of bridges, the development of water-wheels and the construction of fire engines, as the steam engine was first called, all required men trained in this kind of school.

With the development of the railroad which followed the introduction of the locomotive a century ago and the greater use of steam as a motive power in mills and factories, as well as the invention of labor-saving machinery, made the demand for these schools so great that Michigan, Yale and Harvard started their scientific or engineering schools in 1847. In 1862 the Morrill act sensed this need and created state funds for the establishing of colleges "for the liberal and practical education of the industrial classes." In 1864 the Massachusetts Institute of Technology and the Columbia School of Mines were opened. These were followed in the next decade by by a great number of schools of science or engineering throughout the world and in our own country in particular. The Towne Scientific School of the University of Pennsylvania was one of those established during this period.

What was the particular form of education which developed in these schools? In the first place, it was planned to train men to apply natural phenomena for some purpose which would be of service to man. This requires three things, a knowledge of natural phenomena and their laws, a knowledge of the demands of the human race, and, lastly, ability to fit these two together.

To know the laws of nature the student must study the works of others in the various divisions of science and also learn how to find the particular laws of nature in a certain field, when these laws have not been ascertained by previous investigators. When the engineer knows of some new need of a man he must be prepared to say as did an engineer of the past: "I will either find a way or build one."

That many of the laws are of recent knowledge is evident to all of us living in the days of radio transmission and the phenomena of radio activity. But our feeling regarding the new work of today should be the same as that of a few decades ago regarding things common to us at present. Much of it may be but the beginning of new developments which will be much changed by subsequent discovery and thought. To the great mind of Newton the corpuscular theory of light was an explanation of the phenomena known at that time. That remarkable little book, Carnot's "Reflection on the Motive Power of Heat," fills one with wonderment and at the same time a desire to give one little push beyond the point to which Carnot has gone and get him into the thermodynamics of Clausius and Rankine. Years ago in the library of the University of Pennsylvania in reading a book on "Strength of Materials," published in the earlier half of the last century, I was struck by the ingenuity of the experimenters in determining the formulæ for the strength of beams and by the laborious way by which they arrived at formulæ now simple to our juniors and seniors through the mathematical analysis of the problem made at the middle of the century.

Thus, this engineering education requires a study of the mapped region of known work, theoretical and descriptive, and at the same time the readiness to go to the frontier where experimentation and empiricism blaze the way for complete scientific theory.

This study of the works of the past and the present by the engineering student has an important peculiarity in that its application is at once possible to constructions which can prove the thoroughness of the designer and the correctness of his interpretation of the action of nature. The errors of the engineer are immediately evident in the failure of his works.

The next peculiarity to which I have called your attention was the engineer's need to know the demands of the race so that he might utilize natural phenomena, forces, or materials for that purpose. He must study these demands so that his work may satisfy, and he must do it effectively and efficiently. Later I hope to point out some of the ways in which he tries to learn of these demands before they occur and prepare for that which is due to come later.

The training for the ability to fit the supply of nature's bounties to the demands of man in a way that will be for the best interest of all requires so much mature study that the engineering school can only start the student on the path by bringing to him examples from engineering history. It gives him the tools and trains him to apply them.

The early schools of engineering were devoted to the work of the so-called civil engineer to distinguish him from the military engineer who had come down from the past ages. With the development of machines between 1769 and 1870 it was seen that there was work which required preparation different from that demanded for the work for the civil population in its corporate life. As this work was largely devoted to the construction of machines, the separation of mechanical engineering as a unique branch occurred near the middle of the century, mining engineering having been recognized from a much earlier time. The work of Ampere, Faraday, Henry, Siemens, Kelvin, Maxwell, Gramme and many others led to specialization for the utilization of electrical energy, so that during the last quarter of the nineteenth century another special field of engineering was recognized and courses in electrical engineering were offered in different engineering schools. In the last decade of the century engineering activities in the design, organization and operation of projects based on another science were evident. I refer to that field in which chemical action is the foundation of the process. This led to the so-called courses in chemical engineering.

With these five major divisions of engineering we have the main parts of the structure which has grown in later years as the bounds of knowledge have increased. The history of this development has been peculiar to different institutions. Some have cared for the development in one way, some in another. You may recall that here at Pennsylvania until quite recently the work of mechanical engineering and of electrical engineering was included under the Department of Dynamical Engineering to distinguish it from the more static form of the work which had been denoted civil engineering in the seventies and eighties. It was in the nineties that chemical engineering was recognized here as a special course.

I have spoken largely of the work of the engineering school in a very sketchy way and you may have asked just what are its peculiarities. As stated before, it is a study of past investigations into the action of nature, the application of this study to present needs of society and the study of the borderland of the sciences for the purpose of improving and perfecting present equipment and practice. To accomplish this the engineering student must be trained along definite lines of reading, imagination, thinking, searching, anticipation, acting and expression. This has come to be called an engineering course.

The spoken or written word is too bulky or inexact for the engineer in many cases and so to describe form he resorts to drawing as a language. This convention is not only a training for expression and reading but for the development of the imagination so that the engineer may picture certain features of a project before it has any real form. In this study he learns also how to transmit his own ideas to another or to comprehend the structure which another has devised. He can visualize it and intelligently criticise it before the first stroke of work has been done on the project. As a tool by which to complete costs, predict properties or actions and to conserve lost energy of numerous trials and misfits, this study has as great a value as any of the engineering curriculum.

The study of drawing to be used for the transfer of thought is a language study. Training in this method of reading is given early in the engineering course so that it may be used as a tool in subsequent studies. It is here used to picture the plans of others. That these may be understood, the rational conventions of the art must be known by all. In learning to read the concrete expression of the thoughts of others and in stimulating the imagination the student becomes able to picture the non-existent as if it were real and follow out the results which might come from it. Such training must be of great value to any student, though his path in after life never touches participation in engineering activities.

In reading I include the studies of engineering subjects which are the basis of future acts. The engineer is a man who projects new devices from the experience of the past and so in our various curricula there must be included the theoretical data and conclusions which have been collected from past experience. This reading includes thinking, since the reasons for the conclusion from given data must be made clear to the reader in order that he may acquire that ability in the future to reason from proposed conditions. The reading includes the study of mathematics so that this great tool for the solution of quantitative problems may be thoroughly mastered, and also that the concepts and processes of mathematics may be so learned that they may be applied in future work. These studies, of course, include the fundamental studies in chemistry and physics and the more detailed study of mechanics. This is followed by other detailed studies into divisions of these natural sciences. All of this is to prepare the student to go out equipped with the knowledge of the past and the ability to think properly. Then he may project plans into untried fields as well as repeat in a slightly different form the works of the past.

I have said that the engineering course includes training along lines of searching. The student is introduced to the use of instruments by which quantitative and qualitative determinations of natural entities are made. This is to demonstrate how past data have been acquired. From this experience the student has his imagination so stimulated that he may plan future investigations into the unknown and realize how unknown data for the solution of a problem may be sought.

The student is trained to act upon the deduction fromd efinite premises. His course includes the design of structures, the projecting of experiments and the prediction of results which are tested by the actual completion of the device, test or operation. The work of the engineer being such that success or failure can be measured by all, his training is planned to make him realize that only from true premises can actual results be predicted. Definite things must be known before definite things can be surmised, and he learns to deal in realities even though they originally may be creatures of the imagination.

The anticipation of actions and results from a completed scheme is one of the common practices of the engineer. It occurs in any new plan before financial support can be obtained. This develops in the engineer a cautiousness in all acts, for he has constantly before him the ultimate end. Even in conversation he learns to consider his words and their effects on his hearers. I believe it is this which makes engineering training of so much value in all lines of endeavor.

Under this head of anticipation I wish to refer to other things than the action of completed projects of the engineer. For instance, it is the engineer who has planned studies of the demands of vehicular traffic on the completion of the new Hudson River tunnels. Instead of waiting for the completion of these huge tubes the highway engineers are studying the problem resulting from the opening of this new connecting link, and when the tunnels are complete the roads to care for this enormous travel will be ready. A few days ago I saw a map made from a photograph taken from an airplane, and made for a telephone company so that it might study the probable directions of growth of a city for the purpose of planning the location of exchange centers. These examples might be increased, but they show what I mean by anticipation in the training and life of the engineer.

The power of expression is needed by the engineer. I do not here refer to the spoken word alone. He must speak to those who are to aid in making his plans, he must speak to those who are to finance his plans, he must speak to those who are to carry out his plans in construction, and finally to those who must operate the project. For each of these groups he must use a certain language, written, drawn or spoken. In each of these he must have direction, dignity and force. For this he must read much literature and study drawings so that he may know how others have effected their ends.

The great development of human knowledge and engineering activity between 1890 and 1910 led to much division of the engineering curricula. Many options were offered to students of the major courses. Even from the time of the earlier engineering schools there has been a tendency to give courses in which work in some very special field was emphasized. Each of these fields was called some particular kind of engineering. Today there seems to be a tendency to make the differentiation as small as possible and to reduce the number of courses, realizing that specialization should come after work at the engineering school.

In every course with which the term engineering is used there are certain common features which distinguish such courses from those in science. The engineer is primarily a dreamer of dreams which must come true and as such he must know the language of reporting dreams, drawing. He must know how to make these stronger than the fine web of his dreams, and hence the principles of mathematics, structures, machine design and construction must be at his finger-ends. In whatever branch of engineering these dreams may come, the intelligent engineer must have his fundamental training in physics, chemistry, mechanics, structures, mechanical and electrical machinery so that he can make them entities. All engineers must have these subjects in common; to omit any may leave the man a scientist but surely not an engineer.

Beyond this point the special needs of a peculiar field may demand certain courses, but the trend of the times is to make these sectional courses basic rather than highly special. It often happens that the student who may specialize in subjects of great detail finds no opportunity for work in that particular field for which he is prepared, while there are many openings in the other fields of his branch of engineering. It is realized that when the training in fundamental subjects is thorough and the ability to reason is developed by these studies the omission of a highly special course does not mean failure for the graduate, since he has the ability to develop the necessary theoretical part of the subject by independent study, and by observation in the field he acquires the application of this theory.

In the development of engineering practice during the past three decades it has been made clear that the engineer has important human relations with those who carry his designs to completion. Moreover, the training that comes from the definite content of engineering courses has been utilized by organization in seeking executives from among graduates of engineering schools for positions as managers, superintendents, chief executives of departments and even as directors of industries. In such positions men have questions of labor policy and operation to decide as well as questions relating to purchasing, stores and sales. The social and economic relations which are present in the work of the engineer have been reflected in present-day curricula of engineering schools. Such courses as those in American government, the development of civilization, civics, elements of economics, social psychology, business methods, accounting, labor problems, finance and banking are not only possible electives in many engineering schools, some of them are required. The feeling of many engineering educators is that the real problem before their schools is to train more men of broad vision and fewer technicians, leaving this latter work to the great number of vocational schools throughout the world. Not only do we find the economic and social courses emphasized in our engineering schools but there is a tendency to stress the fundamentals of the science more than was formerly done, believing that this is more important than a greater experience in those courses which may be easily acquired after graduation.

The greater study of language, literature and history is quite evident in present-day curricula when compared with those of a decade ago. This is due to the realization that the engineer has recognized his obligations as a citizen to his community, his state and the nation. As a citizen of the present, his training and experience fits him to aid in any of these communities in many of the questions before them. I have merely to mention the work of the Cleveland Engineering Society in connection with certain city highway developments and city planning to illustrate my point. For instance, the engineers as citizens may explain the reasons for bond issues and the methods of retiring such issues so that their fellow-citizens can intelligently support these issues, while explanations by others would be interpreted in a partisan way and lead to the abandonment of needed improvement.

This desire to offer service has led to the formation of the American Engineering Council, formerly known as the Federated American Engineering Societies. This organization, composed of society membership, was formed to foster no selfish end for the engineering profession, but to express opinions of the body of engineers on questions of the day and to serve the nation, state or municipality where engineering knowledge would be of value. In the three years of its existence it has aided the committees of the Senate and House at Washington, it has worked for the improvement of the Patent Office, it has aided representatives of foreign nations and it has given advice to cities regarding engineering matters. The response of the profession during the World War is a matter of history. It was merely an expression of a feeling which had been gradually developing during the last quarter of a century. The matter of service to others has resulted from traditions of the profession in the recognition of aid from those who have gone before. The spirit of mutual help and co-operation which has been responsible for the industrial success of this country has been expressed in the desire to serve.

The need of expression, of which I have spoken earlier, has made necessary a more careful training in the use of written English, and because of the larger field which the engineer is filling the need for ability in the use of the spoken word is becoming evident. To meet this need public speaking is being added to the studies in many schools. By some it is offered as a voluntary extra course; in others as an elective or a required subject; while in other schools it is carried out as part of a course in which oral reports are made by selected students at each class meeting, the student being required to explain and sustain the report when needed. These exercises develop ease of address, but what is of still greater value, the ability to think rapidly. It has that value which was possessed by the study of mental arithmetic used in our public schools of the eighties.

We are met today officially to recognize the Moore School of Electrical Engineering as a part of a great university, and in paying tribute to him who has made possible the enlargement of the former Department of Electrical Engineering I think that we should pause to note in what way this foundation coincides with the present state and ideals of engineering education, and the special fitness of the University for the home of the school which Mr. Alfred F. Moore desired to found.

The establishment of this School of Engineering in the center of the varied intellectual interests of a great university offers facilities for study and for the stimulation of breadth of thought which is only found at such places. The trials of the medics and the biologists, of the lawyers and the dentists, of the teachers and the classical students, bring clearly before the engineering student "that man is born to trouble as the sparks fly upward" and that there are difficulties on the road to success other than those before the engineer. The knowledge of the effort of other professional students is one of the important factors in making the training of the engineer less irksome than it is where no other technical courses are found. In many cases the engineering student, thinking only of the present day, feels that his work is more strenuous than that of others and rebels against his lot.

I have to ask you merely to think of this great University with its numerous departments to have you realize the wonderful facilities which are opened to the students of this school. It is with much pleasure that we learn of the immediate utilization of some of these facilities in the course in Present-day Economic Problems to be given to students in this new school by the heads of departments of the Wharton School of Finance and Economics. What has been done here will doubtless be asked for from the departments of history, philosophy, psychology and English.

When one thinks of the museums, laboratories, libraries and lecture courses open here to all University men he can see how our ideal of a catholic spirit for the engineer can be fostered in this new school.

I have also to speak of traditions in connection with the work of this particular school. Pennsylvania has a past of which we are all proud. The great names from the founder down to the present serve as an inspiration to all and lead to a pride of heritage which comes to its sons. I wish to express to the Moore School my congratulations that it can claim our past as its past. In doing so my mind goes back to ten years ago when Drs. Spangler and Marburg helped to dedicate the Engineering Building. I am sure that they would rejoice over this new enlargement of the Engineering department.

I cannot fail to mention the remarkable location of this new school in the heart of a great manufacturing district, in which the student may find examples of the problems which will confront him on graduation. I have mentioned how the engineer must learn from the study of the works of others. No place is richer in these than the city of Philadelphia.

We have today to recognize a new school which has used the traditions of the past to plan a curriculum to fulfill the ideals of the present. These ideals are the training of men well grounded in fundamentals of science and a particular branch of engineering, who can think straight, who have courage, and at the same time a breadth of vision in social and economic matters, and to whom the thought of service is an impelling force.

CONFERRING OF HONORARY DEGREES

By President Josiah Harmar Penniman

HAROLD PENDER

Doctor of Science

The first Dean of the Moore School of Electrical Engineering of the University of Pennsylvania. For some years Director of the Course in Electrical Engineering at this University. You have been not only a teacher but also a contributor of notable writings to the literature of your subject. You have made additions to our knowledge of electricity and its applications. In recognition of your career as an Electrical Engineer I confer upon you the Honorary Degree of Doctor of Science.

ROBERT HEYWOOD FERNALD

Doctor of Science

Director of the course in Mechanical Engineering of this University. An inspiring teacher, the author of important treatises and papers in your field of Engineering. Your practical wisdom, executive ability and interest in public affairs have been the reason for your appointment on important commissions, on which you have served with distinction. In recognition of your achievements I confer upon you the Honorary Degree of Doctor of Science.

ELIHU THOMSON

Doctor of Laws

A graduate of the Central High School, Philadelphia; inventor of electric welding, and holder of many patents; awarded Grand Prize in Paris in 1889 and 1900 for electrical inventions; officer and Chevalier—Legion of Honor; awarded Grand Prize—St. Louis, 1904, for electrical work; director of Thomson Laboratory of General Electric Co., Lynn, Mass. In recognition of your services to the world, I confer upon you the Honorary Degree of Doctor of Laws.

FRANK JULIAN SPRAGUE

Doctor of Laws

Pioneer in railway electrification; equipped first modern trolley road at Richmond, Va., 1887; inaugurated high speed and house automatic elevators; invented multiple unit system of electric train control and promoted high tension direct current system;

developed system of automatic signal and brake control; promoter of underground rapid transit; awarded Grand Prize, Paris, 1889, for electric railway development; awarded Grand Prize, St. Louis, 1904, for invention and development in electric railways; awarded Franklin Medal, 1921, and many others. In recognition of your services to the world I confer upon you the Honorary Degree of Doctor of Laws.

JOHN JOSEPH CARTY

Doctor of Laws

Pioneer in the development of the telephone; author of many inventions; colonel during war on staff of Chief Signal Officer, A. E. F.; Brigadier General, Officers Reserve Corps, U. S. Army; awarded Distinguished Service Medal; Legion of Honor; Rising Sun and Sacred Treasure (Japan); many medals for inventions. In recognition of your services to the world I confer upon you the Degree of Doctor of Laws.

EDWARD WESTON

Doctor of Laws

Inventor of many improvements in nickel plating; inventor of dynamo-electric machines; maker of many improvements in electric lighting; president Weston Electric Instrument Company. In recognition of your services to the world I confer upon you the Honorary Degree of Doctor of Laws.

II.—Midwinter Convocation of University Council

FOR THE CONFERRING OF DEGREES IN COURSE

February 16, 1924

A University Council for conferring of degrees was held in Weightman Hall, University Gymnasium Building, on Saturday, February 16, 1924, at 11 o'clock. Provost Josiah H. Penniman presided, and the address of the day was delivered by Dean Charles R. Turner, of the School of Dentistry.

Programme of Ceremonies

THE ACADEMIC PROCESSION

THE INVOCATION—Chaplain of the Day—Rev. Father Keogh

MUSICAL INTERLUDE—UNIVERSITY BAND

THE INTRODUCTORY ADDRESS—President Penniman

THE ADDRESS OF THE DAY—Dean Turner, of the School of Dentistry

MUSICAL INTERLUDE—UNIVERSITY BAND

THE CONFERRING OF DEGREES

THE BENEDICTION—Chaplain of the Day

MUSICAL POSTLUDE—UNIVERSITY BAND

ADDRESS TO THE GRADUATING CLASS

By Dr. Charles R. Turner

Academic tradition sanctions and the amenities of the occasion suggest, that on this day the University, whose mouthpiece for the moment I am privileged to be, should offer its felicitations upon the completion of your several courses of study and give its parting message of good will and good wishes. For each of you this ceremony is the culmination of the labors of several years, and your presence here attests the fact that the measure of these labors has been taken, and has been found good. Perhaps for you

> Such a day,
> So fought, so followed and so fairly won
> Came not 'til now to dignify the times.

But at last it has arrived, a moment for rejoicing and thanksgiving.

No doubt it seems but a brief season since you entered the University "with longings sublime and aspirations high" but with ill-defined notions as to the influence which this great experience was to have upon your development. The period of college life comes at a most impressionable time in our careers, and for many of us it is found to be the stage when "hands of invisible spirits touch the strings of that mysterious instrument, the soul, and play the prelude to our fate."

The events of the few past years are still too near at hand for you to judge accurately their significance, and time and experience are necessary to give them their proper perspective; only the years to come can reveal the real character and true worth of their influence.

One wiser than I could no doubt give you good counsel as to the future, but remembering that it has been truly said of advice that the righteous do not need it and the unrighteous will not heed it, I shall forbear to try. One less wise than I might predict what of success you will find in the world, but again I forbear, because I agree with the wag who said that prophecy is a gratuitous form of error. However, I deem it pertinent to this occasion to invite your consideration of a brief examination of the purposes of present-day education, in order that one of the objects which has been held constantly in mind by those responsible for your training may become evident; an object less tangible but no less important than others of which you are so fully conscious; and an object which it is our sincere wish and confident belief that you will find has been realized.

During the mid-Victorian era, the prevalent ideals of education were distinctly aristocratic, in conformity with those pertaining to society and to national government. Knowledge was sought as an adornment of the mind, and culture as an intellectual embellishment which conferred upon its possessor social superiority and influence. It was at this time that Herbert Spencer wrote his epoch-making essay on Education, attacking the false system then in vogue which was less concerned with the "intrinsic value of knowledge" than with its extrinsic effect upon others. He proposed that its "direct utility" should be the chief criterion of the desirability of knowledge and showed with convincing clearness that science which was then beginning to get upon its feet was concerned with the knowledge which had the highest grade of usefulness.

The publication of this essay and the subsequent development of the ideas contained in it have wrought an enormous change in the conception of the aims of education, and utilitarianism has become more and more its dominant note. The rise of the physical sciences has been in part both the cause and effect of the development of this idea. The student of the humanities has been crowded more and more from the centre of the academic stage by the scientist. Mark Hopkins at one end of a log no longer suffices as a conception of a university, but great work-shops and laboratories must be provided for those who seek to learn that which will be useful in the attainment of the ends of modern life. Technical, business and professional education have developed so extensively that adequate provision for them is one of the major concerns of our institutions of higher learning.

The ascendancy of the physical sciences has not been without a baneful effect during this evolution of the utilitarian idea. The great expansion of this field of learning by constant addition of new facts has long ago made it impossible for one mind to compass the whole. This has necessitated the restriction of the limits of the individual effort to what could be learned well, and to the development of specialism. Narrowing of the field of activity, with reduction of the lateral contacts, has tended to make the vision myopic, and focused only on the objective. The intense objectivity of mechanics, of bacteriology, of chemistry and all other divisions of useful learning has been responsible for the exaltation of the end to be gained by the possession of the knowledge of how to attain it, over the consideration of whether the end itself was desirable. The subjective aims of education were being crowded out. That this was recognized as ultimately destructive was to be expected. Technical and professional schools felt the need for a correction of this narrow vision, and many sought the contact with or inclusion in the universities where the broader points of view might prevail.

In the universities the development of the social sciences and the persistent influence of the humanities have had a most liberalizing effect. Students of medicine, of engineering, of economics today derive as must benefit from the influence of other schools of the university as from the technical courses which they themselves pursue. Their own curriculum contains more and more of subjective value.

It is not enough to teach the means of attaining a given end, but men must be trained to a judgment of whether that particular end is desirable, and as to what ends are of most worth. The inner needs of the individual demand that he be able to perceive clearly his correct relation to his fellow-man, and to the events about him in order that proper action may be based thereon.

The former president of Amherst, Alexander Meiklejohn, writing of work in the college, has this to say in regard to its subjective utility: "It would not do to let our special study drive away the fundamental aim which we would make it serve, the aim of so knowing and feeling our human life and men's interpretation of it that one is free in living it."

President Hadley, of Yale University, in an article on "What is Education?" clearly emphasizes the importance of its ethical function today. He says, "Society is not concerned with what its members know, but with the use they can make of their knowledge. It wants men who can verify information, see what bearing it has upon their own conduct, and act accordingly." A sentence attributed to Charlemagne crystallizes the idea: "Right action is better than knowledge; but in order to do what is right, we must know what is right." Thus we see that while the major function of the university with respect to its students is that of training the mind and storing it with useful knowledge, it also includes the inculcation and development of those high ideals of human conduct which should form the basis of right living and right thinking. The upbuilding of character is as much a part of its aim as the dissemination of learning, and the accomplishment of this in you has been the high purpose of the University of Pennsylvania, to which I made allusion in the earlier portion of my remarks.

You came to college with widely differing ideals. The teaching at your mother's knee, your racial and family traditions, your own sense of truth, of honor, of justice, would not have fitted into the same mold. But underlying it all you had a common birthright, you had a sense of truth, of honor and justice which was your proper heritage, and you have had an opportunity to develop it. For after all, as Kipling says,

> The Colonel's lady and Judy O'Grady
> Are sisters under the skin.

Your ethical training has not been only the precept of the class room, for that alone would smack too much of the cloister, but the university maintains its intimate contact with contemporary life of which it is a part, and its members have the means of developing their ideals of conduct by free intercourse and association with the world.

The university also encourages such extramural activities within itself as will tend toward the mutual improvement of its members, and these are no small part of college life. Even the whimsical Mr. Stephen Leacock remarks, "Again and again I have heard the graduates of my own college assert that they had got as much, or nearly as much, out of the lectures at college as out of athletics, or the Greek letter society, or the Banjo and Mandolin Club."

The university graduate is no longer an impractical man without the common touch. He is taking an active part in the affairs of the world today, and he is bringing to his allotted task a high idealism which results in their being uplifted. Example upon example might be cited, but you can cite the instances as well as I.

In conclusion, may I express the wish that you will find yourselves well qualified to undertake the work to which your lives will be devoted; that in your residence here you have caught the impulse "to breathe the enlivening spirit and fix the generous purpose in the glowing breast"; that you will be assured of the continuing interest of your Alma Mater in your careers; and that the distinguished record and prestige of Pennsylvania will be continued in your persons.

DEGREES GRANTED AT MIDWINTER CONVOCATION OF UNIVERSITY COUNCIL

February 16, 1924

DEGREES IN COURSE

Bachelor of Arts (*in Arts and Science*)

Russell King Alspach
Earl LeRoy Bazemore
Richmond Jones Ferguson
Frederick Kenneth Folsom
John Paul Keating
Meyer Lavinsky
Frank Joseph Noonan
John David Phillips
Fred Rank, Jr.
George Brandon Saul
Thomas Joseph Walsh
Morris Weisman
Frederick Wetter, Jr.

Bachelor of Arts (*in College Courses for Teachers*)

James Henry Duckrey, Jr.
Denetta Angie Jordan
Clarissa Martha Reed
Elizabeth Steinbrook

Bachelor of Science in Chemical Engineering

Abraham L. Robinson

Bachelor of Science in Electrical Engineering

Charles John Arthur
Fred Craven

Bachelor of Science in Mechanical Engineering

Joseph Mitchell Hewlett, Jr.
John Edward Strain

BACHELOR OF SCIENCE IN ECONOMICS

Morris Aarons
Edward Caldwell Ammon
(*As of the Class of 1923*)
Joseph Oliver Barnes
Leighton Rodney Beale
(*As of the Class of 1923*)
George Nicolaus Bensen
Herbert Mackay Bingham
William Edward Chambers
(*As of the Class of 1923*)
William Reynolds Clark, Jr.
Lloyd S. Cochran
(*As of the Class of 1923*)
Roy Leonard Cohen
George Tracy Cross
(*As of the Class of 1923*)
Richard Alexander Dee
Domer E. Dewey
Charles Edward Dinsmoor
(*As of the Class of 1923*)
Jerome M. Dreifuss
Thomas Priestley Dyson
Harold J. Fox
Charles Friedman
George J. Friedman
Jacob Henry Froelich
(*As of the Class of 1923*)
Federico D. Gaviola
Robert J. Glock
(*As of the Class of 1923*)
William Henry Groetzinger, Jr.
(*As of the Class of 1923*)
Joseph E. Hadjelhi
Joseph B. Hearn
(*As of the Class of 1923*)
Christian Heurich, Jr.
Samuel M. Hirsch
Francis Joseph Hughes
Frank Alonzo Hunter, Jr.
(*As of the Class of 1923*)
Eugene Allen John
Adam Khuen-Kryk
Charles Adams King
David King
(*As of the Class of 1923*)
Henry Jonas Kuntz
Frank Edward Louch
John McAllister
(*As of the Class of 1923*)
Edward George MacFayden
(*As of the Class of 1923*)
James Joseph Malone
Alvord Bushnell Martin
Peter Clemens Nicolaysen, Jr.
(*As of the Class of 1920*)
Jonathan Howe Pugh
(*As of the Class of 1923*)
Charles Fraser Redden, Jr.
Ralph Harvey Reynolds
(*As of the Class of 1923*)
George Hawley Roberts
Daniel Thompson Rownd
(*As of the Class of 1923*)
Joseph James Scattergood
Philip Henry Schlosberg
Ralph Hartman Schmidt
Frank Lester Smith
(*As of the Class of 1923*)
Powell Stackhouse, 3d
Dean H. Taylor
(*As of the Class of 1923*)
Harry Frew Waidner, Jr.
Edward Francis Walton
Thomas Wilson Wardle
(*As of the Class of 1923*)
Henry Norman Weiss
Jerome Odell Woodling
(*As of the Class of 1923*)
Morris Yulsman

BACHELOR OF SCIENCE IN EDUCATION

*Lilian Bartholomew
Evelyn A. M. Bond
*Florence Claire Brachman
Ernest A. Choate
Athol William Cliff
William Morgan Clime
Margaret Lownes Conover
Francis Reel Crane
Frances Helen Devine
Robert Hamilton Drewson
*Laura Winslow Drummond
Marguerite Evans
Rose Fenner
Allan Randall Freelon
Mary Edith Geesey
Louis Ginsberg
Anna Glazer
Nellie Sue Hall
Constance Louise Herbst
Inez M. Johnson
Catharine Kelley
Birdie Liberman
Florence Gertrude Long
Clyde Ira Martin
Henderson M. Mendenhall
Mildred E. Osler
Michael Leo Raedy
Louise Christine Rebe
Hortense Seidenman
Sister M. St. Margaret Fitzsimons
Ralph Richards Smith
Erminio Tallia
Aurora M. Talone
Beulah Elizabeth Thomas
Jean May Tweed
Arthur Raymond Walter
Eleanor Frances Webster
Jeanette Sandberg Whitehill

Bachelor of Science in Education (*post mortem*)

Sara Crane Weinstein

Bachelor of Architecture

Frank Anthony Berlenbach
James Francis Bradley
Nicola Giuseppe Gallucci
Richard Henry Kline
(*As of the Class of 1917*)
Samuel Kendrick Lichty
Irving Browne Parsons
Cyrill Henry Pfohl
Frederic Rentschler Shenk
(*As of the Class of 1923*)
Willys Peck Wagner
James Rennie Wilson
*Ting Pao Yang

* With Honors.

Bachelor of Music

Audrey Eugenie Anthony
Kathryne Louise O'Boyle

Doctor of Philosophy

Gilbert Malcolm Fess, Ph.B., A.M., Alfred College, 1912; Syracuse University 1914. Romanics.
The Correspondence of Physical and Material Factors with Character in Balzac.

Raymond I. Haskell, B.S., A.M., Colby College, 1914, 1917. Education.
A Statistical Study of the Comparative Results Produced by Teaching Derivation in the Ninth Grade Latin Classes and in the Ninth Grade English Classes of Non-Latin Pupils in Five Philadelphia Schools.

Halford Lancaster Hoskins, A.B., A.M., Earlham College, 1913; University of Pennsylvania, 1921. History.
British Routes to India, 1798–1840.

Clarence Arthur Kulp, B.S. in Ec., A.M., University of Pennsylvania, 1917, 1921. Economics.
Discounting of Dividends by the Stock Market.

Edwin Bucher Williams, A.B., A.M., University of Pennsylvania, 1914, 1916. Romanics.
The Life and Dramatic Works of Gertrudis Gomez de Avellaneda.

Master of Arts

Nobori Asaji, A.M., Hiroshima Higher Normal College, 1920. Philosophy.
Anna G. Campbell, B.S. in Ed., University of Pennsylvania, 1920. Education.
Dorothy Cathell, A.B., University of Pennsylvania, 1921. English.
Eva May Chadwick, B.S. in Ed., Temple University, 1918. History.
Amy Chateauneuf, B.S. in Ed., University of Pennsylvania, 1921. Education.
Chih Teih Chu, B.S., Massachusetts Institute of Technology, 1921. Physics.
Walter Francis Coles, A.B., University of Pennsylvania, 1909. Education.
John Wendell Cooper, A.B., University of Pennsylvania, 1922. Psychology.
Dorothy Pennypacker Davis, B.S. in Ed., University of Pennsylvania, 1917. English.
Leland G. Edinger, B.S. in Ec., University of Pennsylvania, 1921. Economics.
Harold A. Fellows, B.S. in M.E., University of Pennsylvania, 1921. Economics.
Waldo Emanuel Fisher, B.S., Columbia University, 1917. Industry.
Arnold K. Henry, B.S. in Ec., University of Pennsylvania, 1921. Economics.
John Francis Jeremiah, B.S. in Ec., University of Pennsylvania, 1920. Economics.
Amos John Krebs, A.B., Pennsylvania College, 1916. Education.
Charles Miller Kresge, A.B., Franklin and Marshall, 1922. Education.
Robert Weiss Kunzig, B.S. in Ch.E., University of Pennsylvania, 1912. Education.

Master of Arts—(Continued)

GEORGIANA SHARPLESS MENDENHALL, B.S. in Ed., University of Pennsylvania, 1917. Psychology.
NELLIE ELIZABETH MONROE, A.B., Oberlin College, 1919. English.
YALE SAMUEL NATHANSON, B.S. in Ed., University of Pennsylvania, 1923. Anthropology.
MERLE MIDDLETON ODGERS, A.B., University of Pennsylvania, 1922. Latin.
ALENE RALSTON, B.S., University of Pennsylvania, 1919. Psychology.
THOMAS EVANS ROBINSON, A.B., Temple University, 1917. English.
QUINCY ALVIN W. ROHRBACH, A.B., Franklin and Marshall, 1922. Education.
HARRY PETERS ROTHERMEL, A.B., Lafayette, 1901. Education.
MARY ADELIA SHOCKLEY, A.B., Missouri University, 1921. History.
SOPHIA FIELD SPIELBERG, B.S. in Ed., University of Pennsylvania, 1917. English.
JAMES STOKLEY, JR., B.S. in Ed., University of Pennsylvania, 1922. Psychology.
FAYE C. SWINDELL, A.B., Nebraska State Teachers' College, 1920. Education.
ARTHUR FREDERICK SYMOND, B.S., South Dakota State College, 1922. Political Science.
ESTHER GERTRUDE TAYLOR, A.B., Swarthmore College, 1919. English.
RAY BEACH WALLACE, B.S. in Ec., University of Pennsylvania, 1921. Psychology.
BLANCHE ETHEL WEEKES, B.S. in Ed., University of Pennsylvania, 1923. Education. (*As of June, 1923.*)
CHARLES EDWARD WILLIAMS, B.S. in Ec., University of Pennsylvania, 1916. Education.
GEORGE LLOYD WILSON, A.B., Swarthmore, 1918. Economics.

MASTER OF SCIENCE

FREDERICK HANSCOM EMERY, B.S., New Hampshire College, 1922. Chemistry.
ARTHUR KENNETH GRAHAM, B.S. in C.E., University of Pennsylvania, 1919. Chemistry.
EUGENE MARKLEY LANDIS, A.B., University of Pennsylvania, 1922. Zoölogy.

DOCTOR OF MEDICINE

George Henry Flatz

DOCTOR OF MEDICAL SCIENCE

For Graduate Work in Bacteriology-Immunology

Massimo Maurice Strumia

MASTER OF MEDICAL SCIENCE

For Graduate Work in Internal Medicine

Francis Daniel Murphy

For Graduate Work in Pediatrics

Berman Dunham
James Houston Wallace
Harvey Nailee Zee

For Graduate Work in Ophthalmology

Ivan Jacob Koenig

BACHELOR OF LAWS

Abraham Blieden
Holman George Knouse
Raymond Spencer Shortlidge

Doctor of Dental Surgery

George Ronald Bevan
Henry Francis Diana
Isaiah Theodore Donaldson
Thomas Francis Donohoe, Jr.
Joaquin Estrada Chacon
Heindel Mellinger Hinkle
Elle Samuels
Clarence Frazier Scarbrough

COMMISSIONS

Department of Military Science and Tactics

The following students in the R. O. T. C. who have completed the course of instruction in Military Science and Tactics, have been awarded commissions:

Second Lieutenant of Infantry, Officers' Reserve Corps, United States Army

Thomas Priestley Dyson
Emil Francis Goldhaber
Keith Garrison Schnebly

CERTIFICATES

In Architecture

George Curtis Sponsler, Jr.

In Music

Thomas Horace Evans (*As of the Class of 1898*)

In the Graduate School of Medicine

For Graduate Work in Dermatology-Syphilology—January 3, 1923, to August 15, 1923

Roy Hassell Crockett

For Graduate Work in Internal Medicine—January 8, 1923, to December 8, 1923

Floyd H. Randall

For Graduate Work in Ophthalmology—October 18, 1922, to July 28, 1923

Robert Finley Campbell
Walter Henry Fink
Francis Theodore Fitch
Roland Frederick Fleck
George Llewellyn Hoffman
Joseph Julian Horton
Edmund Lloyd Jones
Tsung Yao Lai
Robert John Masters
Robert Haller Newman
Bascom Headen Palmer
Belvin Pritchett
Ira Bitzer Winger
Leon Roland Young
Roy Carl Young

For Graduate Work in Radiology—During the Session 1922–1923

Thomas Furlong Baxter
James Hubert West
Paul Swift Williams

III.—University Day

CEREMONIES COMMEMORATIVE OF GEORGE WASHINGTON, FIRST PRESIDENT OF THE UNITED STATES

February 22, 1924

The University held its ninety-ninth annual observance of Washington's birthday on Friday, February 22, 1924, with an impressive ceremony at the Academy of Music, Philadelphia.

President Josiah Harmar Penniman presided. The orator of the day was John Bassett Moore, LL.D., Judge of the Permanent Court of International Justice. Honorary degrees were conferred upon Clarence Stanley Fisher, archæologist and explorer; Frank Aydelotte, President of Swarthmore College; John Henry MacCracken, President of Lafayette College; Charles Merrill Hough, United States District Judge of the Southern District of New York; Richard Beatty Mellon, founder of the Mellon Institute of Industrial Research, and John Bassett Moore, distinguished authority on International Law.

The exercises were varied by the participation of the Musical Clubs in the program. From 10.30 to 11 o'clock the University Symphony Orchestra, under the direction of Hedda Van den Beemt, played a number of selections. During the last number the academic procession filed upon the stage. Following Dr. Moore's address, the Glee Club of nearly one hundred voices sang several numbers.

The Programme of Ceremonies was as follows:

MUSIC

ACADEMIC PROCESSION

INVOCATION by the Chaplain of the Day

HYMN—"America"

INTRODUCTION by the President

ADDRESS by the Orator of the Day

HYMN—"Hail! Pennsylvania"

CONFERRING OF HONORARY DEGREES

HYMN—"Now Thank We All Our God"

BENEDICTION by the Chaplain

INTRODUCTION

By President Josiah Harmar Penniman

In introducing Dr. Moore as the Orator of the Day President Penniman spoke as follows:

We have come together this morning by invitation of the University to honor the memory of George Washington. To but few in the history of the world has it been granted to receive the thankful homage of a nation. The greatness of Washington, and the value of what he did, seems to increase as on each succeeding twenty-second of February we pause to commemorate his birthday. Compare him with other great men of the world and see how far his contributions to the welfare of mankind outweigh theirs. Appraise, if you can, the value of his character and his example, as well as of his achievements, and see what a mighty force they have been in directing and molding the thought of the nation. Appropriate, therefore, and far-sighted was the action of the Trustees of this University in setting apart in 1826 the birthday of our first President as a day for formal ceremonial. They recognized the leading of Providence that brought to the command of the Colonial armies and finally to the Presidency of the new nation that son of Virginia, whose only thought was to serve his country when it needed him and then to retire to the quiet and peace of his life at Mount Vernon with no desire for fame, content with the approval of his own conscience. His country was to Washington something to which he owed allegiance and active service, an idea that needs to be impressed on the minds of every generation as it rises. If at any time in any way the honor or integrity of this nation is assailed or imperiled it is the rising generation that must spring to its defense, with the conviction of Washington that "the due administration of justice is the firmest pillar of good government," and defiance of law because a particular law may be obnoxious to some if condoned and unpunished threatens the very existence of government.

Charles Thomson, for a time a teacher in the Academy from which developed the present University of Pennsylvania, acted for many years as Secretary of the Continental Congress. He was "the one continuous and perpetual officer of the Revolutionary Government," writes Mr. John C. Fitzpatrick in a recent article, and to him was entrusted by the new Government under the Constitution the task of delivering to George Washington at Mount Vernon the certificate of his election as President of the United States. Among the treasures in the Library of Congress is the original manuscript of the speech with which Charles Thomson, our elder brother, fulfilled his mission. He said:

> Sir: The President of the Senate, chosen for the special occasion, having opened and counted the votes of the electors in the presence of the Senate and the House of Representatives, I am honored with the commands of the Senate to wait upon Your Excellency with the information of your being elected to the office of President of the United States of America. This commission was entrusted to me on account of my having been long in the confidence of the late Congress and charged with the duties of one of the principal civil departments of government.
>
> I have now, Sir, to inform you that the proofs you have given of your patriotism and of your readiness to sacrifice domestic ease and private enjoyments to preserve the liberty and promote the happiness of your country did not permit the two houses to harbor a doubt of your undertaking this great, this important office to which you are called, not only by the unanimous votes of the electors, but by the voice of America. I have it, therefore, in command to accompany you to New York, where the Senate and the House of Representatives of the United States are convened for a dispatch of public business.
>
> In executing this part of my commission, where personal gratification coincides with duty, I shall wait your time and be wholly governed by your convenience.

Washington, busy with his farms at Mount Vernon and writing to General Benjamin Lincoln, of Massachusetts: "This last hope, as a last anchor of worldly happiness in old age, I had still carefully preserved," was called to the Presidency against his own desires—probably the only President of whom that can be said.

No one here present can deny his indebtedness to George Washington for what he did to establish this nation upon the only sure foundation of equal rights and equal opportunities for all its citizens, secured so far as it is possible to make permanent any human institution, by a form of government in which every citizen has a share. So great is our debt to our first President that for almost a century the University of Pennsylvania has commemorated his birthday by pausing in its work not only for a holiday but a holy day for an assembly of faculty and students to hear a speaker of note treat of some phase of Washington's life and work, or of other matters of national import.

Successors to Washington in his high office of President of the United States, Ambassadors of foreign Governments, eminent scholars, inspiring leaders of thought, these have been the speakers on preceding occasions. Today we have as the orator a scholar known in many lands, a teacher respected for his erudition and beloved for his personal qualities by all who have been his students in our great sister university, Columbia, formerly Assistant Secretary of State and counselor of the Department of State, member of the Permanent Court, The Hague, Judge of the Permanent Court of International Justice since 1921. Ladies and gentlemen, I have the privilege of presenting to you as the speaker of the day the Honorable John Bassett Moore.

ADDRESS—"RELATIVITY"

By Hon. John Bassett Moore

I have ventured to take as the title of the present discourse the word "relativity," but I do not intend to encroach on the domain of the American Philosophical Society by discussing the merits or demerits of the theory associated with the name of Einstein. My purpose is altogether different.

I use the word "relativity" to denote the great principle of estimation by which human transactions are to be judged. This principle is that all things are relative, in the sense that they are to be considered not as isolated facts but as facts having relation to other facts, past as well as present. This is not a mere play of words or of fancy. The principle is fundamental, and not less practical than profound. If suspended or hampered in its operation, the world quickly deteriorates; its restoration to activity carries the assurance of safety and growth. In its effect it is both conservative and constructive. It is conservative in that it preserves what ages of struggle have painfully won; it is constructive in that it intelligently guides progressive effort. Its roots strike deep into the past. Even from the remotest antiquity it derives sustentation; but the vital essence it draws from ancient sources serves but to enrich its efflorescence and to increase the abundance of its fruits.

Nevertheless, there are and always have been those, and their name is legion, by whom this great principle is little understood; and its proponents are constantly forced to defend it. The conflict between those who would study the past for its lessons, and those who assume that the sights and sounds of the present suffice, is not confined to any age. Nearly two hundred years ago Sir William Temple, surveying the controversy then going on in England as to the relative excellence of the ancient and the modern learning, inveighed against those who would discourage scholars in all degrees from reading the ancient authors. This protest he was, so he declared, induced to make not only by the common interest of learning, particularly in the universities, but also by a just indignation at the insolence of the modern advocates in defaming heroes whose memory had been sacred and admired for so many ages. But, wholly apart from the tendency, which rewriters of history still so often exhibit, to defame those whose work they would undermine, there is a common propensity to regard with complacent superiority the things with which one is familiar.

At one of the meetings held twenty-three years ago to celebrate the one hundredth anniversary of the assumption by John Marshall of the office of Chief Justice of the United States a speaker took occasion to comment upon the physical changes that had taken place since Marshall's time in the conditions of everyday life. Whether this was intended by way of praise or of disparagement of what was accomplished by Marshall and his contemporaries, the speaker did not make clear, but the note of disparagement seemed rather to prevail. What the speaker was apparently most desirous to do was to convey a caution against the inadvertent over-estimation of the value and importance of what was done in earlier times; and in order to impress this thought upon his hearers he remarked upon the fact that Marshall had never seen an electric light, except as nature's flashes had illuminated his Virginian hills; had never used the telegraph or the telephone, and had never even traveled on a steam railway. The inference thus was obviously to be drawn that, tried by the higher, more diversified, more exacting standards of the centennial year, 1901, Marshall would be rather out of date.

This is a very prevalent point of view. One may, indeed, say that it reflects the popular attitude, and when I say "popular" I do not intend to exclude all those who make a profession of learning and intelligence. But it is easy to show that, tried by the test set up by the speaker in 1901, those who have survived to the present day are very much in advance of those who lived only as late as twenty-three years ago.

If proof of this fact were required, probably we should unanimously agree on one single and sufficient demonstration, and that is the recent development and use of radio. Its efficiency in the transmission of sound for purposes of instruction and amusement is evident; but if, applying the test of relativity, we undertake to estimate its value in imparting useful knowledge, in raising ideals, in stimulating and elevating the conception of public service and in otherwise ministering to man's spiritual needs, it is by no means clear that the quick broadcasting of sound is necessarily to have an advantage over earlier and less speedy methods. I will give a practical illustration of my meaning.

Not long ago I happened to be at a place where there was a radio apparatus actively employed for the entertainment of those who were present. In the first instance connection was successively made with broadcasting stations in the city of New York and in each instance the result was the same. The sound that floated through the room was that of jazz and a comic song. It was then suggested that a connection be made with Pittsburgh and, after some preliminary confusion, reverberations were heard from that more distant place. Again it was a jazz and a comic song. It was then proposed that a connection be made with Philadelphia. Perhaps it was expected that we should hear from that quarter, if not the thunders of the law, yet a grave and quiet discussion of the mooted question as to the precise spot on which William Penn signed the treaty with the Indians. But this did not prove to be the case. After the usual preliminary convulsion a dominant note asserted itself and, in the language of Byron, "there was heard a sound of revelry by night," and yet again it was jazz and a comic song.

Far be it from me to reflect, even in the smallest measure, on the menu of radio. The particular occasion to which I have adverted happened to be the hour when men and women dance and dine and dine and dance. As the newspaper displays with type, so radio displays with sound all forms of human activity, grave as well as gay, the solemn but diffident admonition of the university oration as well as the flaunting enchantments of the sentimental ditty. Nor would I be understood to intimate that dance and song did not occupy a place, even a large and hilarious place, in the life of earlier and, indeed, of all previous generations. All I intend to communicate is the thought that the development and accumulation of scientific discoveries and of inventions that quicken locomotion and the dissemination of sound bear no intrinsic relation to the progress of mankind in spiritual things and that, so far as they minister to mistaken assumptions of moral or intellectual superiority, their effect may even be harmful.

The intense preoccupation of the present generation with the physical sciences has exerted a profound influence both on instruction and on the selection of the subjects of instruction in our schools, and this influence has been no less visible and pronounced in our colleges and universities than elsewhere. This was natural and in a measure inevitable. None of us can be insensible to the human activities by which we are daily encompassed; nor is a mere bovine imperviousness to their effects to be commended. But it is, on the other hand, of the utmost importance to be on our guard against the impulsive, headlong rush after passing fancies, the extreme pursuit of which may, like the over-hasty movement of an army, result in the loss of essential equipment and supplies.

Some years ago in the bazaars of the Orient I watched the caravans as they arrived and departed, and I observed that the camels were always preceded by a donkey. My curiosity being excited by this singular form of leadership, I later sought to investigate its origin, and I found in Sir Francis Palgrave this explanation: "An unladen ass precedes the file, for luck, some say; for guidance, say others." We thus see that the tendency to follow some kind of leadership and to trust to it rather blindly is more or less characteristic of all animate nature. But human beings possess in this regard a manifest advantage. Sir Francis says that the camel, though "never tame," is "not wide-awake enough to be exactly wild." This is not true of human beings. Without regard to the question how far they can be tamed, they are wide-awake enough for every purpose; but, while thus fully alert, they also fortunately possess, as a check on impulse, the power of discrimination.

The need to exercise this power is ever present, but the effort may be futile and even disastrous if it be not informed and guided by a comprehensive acquaintance with the records of human experience. The conscious recognition of this truth is one of the reasons of the present demand for the examination of recent tendencies in our colleges and universities, and particularly of the permissive substitution of modern for ancient languages, including Latin as well as Greek, and the consequent abandonment of the study of the ancient classics as a requisite for even the higher degrees.

These changes have been justified by the argument that the study of the ancient languages has lost its relative educational value, a knowledge of the physical sciences having become more important than that of languages, as well as by the argument that the modern languages had been neglected and that they would in the future by reason of substitution be more effectively taught and more generally learned. The former argument, which touches a fundamental point, will be considered farther on; the second may be disposed of somewhat briefly. Its validity may readily be tested by comparing the earlier with the later results in the case of candidates in our universities who apply for the higher degrees, such as that of doctor of philosophy. Of candidates for these degrees a knowledge of the ancient languages, or at any rate Latin, and also of two modern languages other than the candidate's native tongue, was strictly exacted. In recent days there has been a logical tendency, conforming to the subordination or waiving of classical studies in college courses, to permit the candidate to substitute modern languages for the classical tongues. It is probable that no one having experience in such matters could be found to affirm that this subordination or waiving of the classics has resulted in a higher proficiency in the modern languages. The earlier candidate who knew Latin usually knew his French far better and his German equally well. So that, from the linguistic point of view, there has been no gain, but a net loss.

The observation of results such as these has contributed to the agitation now going on for the revival and restoration of the study of the classics. This movement may be said to be international, and the fact that it is international merely denotes that the same process of educational deterioration has been of wide extent and that the need of its correction is recognized and felt in many lands. The other day I had the pleasure to receive from that eminent judge and jurist, Lord Finlay, formerly Lord Chancellor of Great Britain and now a member of the Permanent Court of International Justice at The Hague, a copy of an address which he delivered on the occasion of his recent installation as President of the Scottish Classical Association. In the numerous proofs which Lord Finlay adduces of the returning sense of the importance of classical studies, he cites the decree issued in France as late as May 3, 1923, restoring Latin and Greek to their former place as essentials of secondary education. This decree, which has also been noted and widely discussed in the United States, was based upon a report of Minister of Public Instruction M. Leon Berard, in which he maintained the sound and unchangeable doctrine that the object of training in the secondary schools is to introduce the mind to fruitful methods of learning rather than to burden it with a mass of heterogeneous and unrelated facts.

But another and yet profounder reason may be given for preserving our acquaintance with the languages commonly called dead, and when I say "commonly called dead" I speak advisedly, since the mortuary assumption is supported by the proofs only in a limited sense. The Apostle Paul, when referring to one long departed, of whose gifts God had testified, described him as one who "being dead yet speaketh." No dubious license is needed to extend this affirmation of continuing vital force to Homer and Virgil, Herodotus and Livy, Thucydides and Tacitus, Demosthenes and Cicero, Plato and Seneca, to say nothing of others whose works still furnish models for students of poetry and prose, of eloquence and logic, of history, politics and philosophy. No less evident is the persistence of Greek in the terminology of science, or the perpetuation of the speech of the Romans in the great Romance languages, of which Latin is the vital source. Nor is this all. Long after Greek had ceased to be widely spoken Latin remained, even as in limited circles it does today, the language of ecclesiastics and scholars, thus serving both as the vehicle of expression and as the living repository and perpetuation, of the learning of the times as well as of ancient learning. Nor was the inexorable character of this succession altogether done away with by the advent of the encyclopedists. Should anyone entertain a doubt on this point let him, for instance, essay to trace the application of judicial methods to the settlement of international disputes during the past thousand years.

The educational results accomplished by the encyclopedist are severely conditioned by the nature of his task, the fundamental limitation of which may be illustrated by an anecdote, more witty than polite, told of Lord Eldon. Speaking one day of the narrowness of his early circumstances, his lordship is said to have remarked that when at his marriage he repeated the words "with all my worldly goods I thee endow" he barely had a crown to his name; and when Lady Eldon, who was present, amiably observed that his lordship had his splendid "talents" he is reported to have replied: "Yes, my dear, but I did not endow you with them."

So it is with the encyclopedist. No matter how profound may be his individual researches, he cannot endow the general reader with that understanding of a subject which can be gained only by the mastery of all its processes, nor has he the time and attention of his reader at command for such a purpose. Especially is this true of subjects which, although they touch the primary springs of human conduct, can, because they are technical and essentially recondite, be mastered only by recurring to the original sources.

Thus by converging streams of argument are we surely borne to the consummate conclusion that for preserving a familiar acquaintance with the ancient languages the profoundest reason that can be given is the fact that the study of them, in conserving our connections with the past and its inexhaustible treasures, not only induces habits of inquiry and reflection but qualifies us intelligently to estimate the current phenomena of life, relatively and in their true perspective, as incidents in the unbroken procession of human activities, and not in dazed and hasty fashion as new and isolated things, without precedent in the annals of human experience.

This vital phase of the subject, so far as I am acquainted with what has been said concerning it, has never been explained with greater force or felicity than was done by President Coolidge in the address which, while he was still Vice-President of the United States, he delivered at the annual meeting of the American Classical League at the University of Pennsylvania in July, 1921. Speaking on that occasion, President Coolidge said:

> We come here today in the defense of some of the great realities of life. We come to continue the guarantee of progress in the future by continuing a knowledge of progress in the past. . . . The age of science and commercialism is here. There is no sound reason for wishing it otherwise. The wise desire is not to destroy it, but to use it and direct it rather than to be used and directed by it, that it may be as it should be, not the master but the servant, that the physical forces may not prevail over the moral forces, and that the rule of life may not be expediency but righteousness.

No question can be adequately comprehended without its historical background. Modern civilization dates from Greece and Rome. The world was not new in their day.

As the world was not new in the days of Greece and Rome, so it is not new in our own day. As we owe our models in art, in literature and even in politics and government in some measure to Greece, so also do we owe a large part of our heritage of literature and law, and of experience in the forms and processes of government to Rome.

Very recently I had occasion to reperuse the Politics of Aristotle, and I confess that I did it in an expert translation, my own knowledge of Greek, which was at one time, as things go, relatively substantial, having been impaired by a desuetude which I will not call innocuous or otherwise seek to extenuate. If there is any phase of political action not dealt with in the disquisition of Aristotle it is a phase which, I do not hesitate to affirm, our modernists will not be able to point out. The most fundamental conceptions are there. The doctrine of the separation of governmental powers is often spoken of as a modern development, for the exposition of which few go farther back than to the celebrated treatise of Montesquieu. But it is set forth with unsurpassed comprehensiveness, clearness and force in the work of Aristotle. This is but a single illustration.

We beat the air today and demand the instant eradication of all human ills, chiefly by means of legislation, national and international. In keeping with the profound and serious character of such demands a popular but apparently inopulent writer has lately offered a lock of a certain United States Senator's hair as a prize for the best definition of a "progressive." The competition for the prize is said to be very active, but there appears to be a dominant note of common sense in the comment of a Western editor who, while professing to be "avowedly progressive and proud of it," declares that he is prepared to indorse "neither extreme communism nor extreme corporationism," but prefers "to fumble along, trying to salvage some of the old finer Western American qualities of courage and independence, being illogical, inconsistent and full of fight."

No one who reflects upon current transactions and contrasts them with what was done in the earlier days of the Republic can fail to acknowledge that we cannot afford either to cut our connections with the past or to act upon the assumption that we do not need its experience and example as a stimulus and guide. At the present moment the tendency to consider recent conditions as isolated facts is producing unfortunate effects even among those who might have been expected to apply the principle of relativity and to explore the past for the purpose of testing the validity of current impressions. As a result, we often hear today that established rules, heretofore unchallenged, are no longer to be maintained because they are inapplicable to the present conditions, which are mistakenly assumed to be wholly or substantially new. By reason of the same superficial and erroneous impression we are told that even the elementary, humane distinction between combatants and non-combatants has to a great extent become invalid, so that it can no longer be reckoned upon to safeguard the lives of unarmed men and women, or to assure protection to property and commerce. Certainly it is high time to re-examine the premises on which such conclusions rest and to do it in the light of past experience and of the agonizing cost of the hard-won advance which it is now proposed incontinently to abandon.

Taking a still wider range, no matter in what direction we turn, we hear the same impressive admonition. We all are familiar with Gladstone's celebrated pronouncement that the Constitution of the United States is "the most wonderful work ever struck off at a given time by the brain and purpose of man." The President of the Constitutional Convention was George Washington, the anniversary of whose birth the University of Pennsylvania has most fitly adopted as its University Day. In repeating the encomium that he was "first in war, first in peace, and first in the hearts of his countrymen," we have the same justification as when we recite the proverbs of the past for the instruction and improvement of the present. Nor can we too often recur to his words of wisdom and his patriotic example.

There never was a period in the history of the world in which work of a higher constructive order in politics and in government was done than in the years made illustrious by the achievements of Washington and his contemporaries. If there were among them a few to whom, as Cardinal Newman has said, the just estimate of passing events might possibly be a natural gift, yet there were others who had gained their power of just estimation through the study of what had gone before. Indeed, when one reads the records of that formative and fruitful time nothing can impress him more than the learned effort on the part of the framers of the Constitution and its expounders to utilize all that could be derived from accessible sources concerning the experience of the past. The idea that, in throwing off one government and setting up another, they were so breaking with the past as to render its teachings negligible or superfluous never entered their sober counsels.

But the Constitution was not the only momentous document which the efforts of the time brought forth. Almost as remarkable was the Judiciary act, under which the Federal courts were set up and by which their jurisdiction and processes were defined and regulated; a constructive measure so sagaciously contrived that it stood for one hundred and twenty years without substantial amendment.

In the international sphere the achievements were hardly less notable. The foundations were then well and surely laid of the foreign policy which the United States has in the main since pursued. Based on the principle of the independence and equality of nations, in no respect was its development more striking than in the use of mixed commissions, or arbitral boards, designed to assure the settlement of international disputes by the application of rules of law. By what was done in that direction, particularly under the Jay Treaty, signed and ratified while Washington was President, this legal and pacific method, which the recurrent wars in Europe had caused to fall into disuse, may be said to have been revived.

The Jay Treaty was concluded at London on November 19, 1794, the signers being Lord Grenville on the part of Great Britain and John Jay, then Chief Justice, on the part of the United States. It provided for three international boards of arbitration. To the first was committed the ascertainment of the boundary river designated in the treaty of peace as the St. Croix. This was successfully accomplished by means of a decision which the contracting parties, in conformity with their engagement, accepted as final. By the establishment of the second board it was intended to assure compensation to British creditors for the loss of debts which some of the States of the Confederation had undertaken to confiscate during the Revolutionary War; but, owing to certain causes, partly personal, the proceedings of this commission were suspended and a direct settlement was effected through the payment by the United States of a round sum. Of vastly greater importance, however, was the third board, which was established under the VIIth Article of the treaty.

By this article provision was made for the settlement of two classes of claims, one American and the other British, both of which arose during the war between Great Britain and France growing out of the French Revolution. In this war Washington had declared the United States to be neutral. The American claims were demands for compensation for loss and damage suffered by citizens of the United States by reason of British captures or condemnations of their vessels and other property. The British claims were, on the other hand, demands for compensation for loss and damage suffered by British subjects through French captures of their vessels and merchandise, made either within the jurisdiction of the United States or by vessels originally armed there. In the cases of the American claims it was contended that the British Government had violated rights of neutral trade. In the case of the British claims it was contended that the Government of the United States had failed to perform its neutral duties. The contentions on both sides profoundly affected the interests both of belligerents and of neutrals.

For the purpose of settling in a legal, orderly, peaceful way these serious controversies, on which potentially hung the issues of peace and war, it was agreed to establish at London a mixed commission to consist of five persons two of whom should be appointed by the United States and two by Great Britain, while the fifth, if not unanimously chosen by the other four, was to be drawn by lot. The plan was carried out and the board was duly installed.

The individual distinction of the members of this tribunal would alone suffice to give it a high place in the annals of international arbitration. The commissioners chosen on the part of the United States were Christopher Gore, of Massachusetts, and William Pinkney, of Maryland. Gore, who is commemorated at Harvard University by the hall bearing his name, was one of the chief ornaments of the Boston bar, but his reputation was by no means purely local. His professional renown had spread far beyond his city and State. Of Pinkney, it may be said that his star was in the ascendant. Destined later to play a distinguished rôle in statesmanship and in diplomacy, he lived to become the pride and acknowledged leader of the American bar. Great Britain, on the other hand, appointed as her commissioners two eminent civilians, one of whom, Sir John Nicholl, eventually succeeded Lord Stowell as Judge of the High Court of Admiralty. The other British commissioner was John Anstey, an advocate of the highest professional rank at the admiralty bar. The fifth commissioner, who was drawn by lot, was Colonel John Trumbull, of Connecticut, who later became Governor of that State.

Nor was the tribunal distinguished solely by the high quality of its membership. It was rendered equally notable by the amplitude of its jurisdiction. Not only were the claims sweepingly embraced in general categories, but the powers of the commissioners in deciding upon them were unhampered by words of limitation or exception. It was thus left to the commission to pronounce on questions of a fundamental character, and this the commission did. In the first place, it asserted and exercised the power to determine for itself the limits of its jurisdiction under the terms of its constitution; and, in the second place, it entertained claims based on condemnations of property by national prize courts of the highest jurisdiction, and awarded damages where it held such condemnations to have been wrongful. The settlements effected through the commission rose to the extraordinary total for those days of $10,000,000, and the money as it became due was paid punctually and without protest. Evidently the impression then prevailed that the determination of international disputes by judicial methods could be efficacious only if the tribunals were invested with power and supported in the exercise of it.

The work of the London commission had yet another result. Among the international arbitrations so far held that of the Alabama claims at Geneva in 1872 still represents the high-water mark. But it is a fact, known to the intelligent negotiators of that time, but perhaps little known today, that the germination of the Geneva arbitration may be traced to the Jay treaty and the proceedings of the London commission, which was, it is believed, the first international tribunal judicially to award pecuniary compensation for damages resulting from the failure of a government to perform its duties as a neutral.

Today we are not improving upon those precedents. On the contrary, if arbitral agreements are made there is a disposition to hedge them about with limitations and to emasculate them with exceptions and if the award is against us to question its justice or even its validity. Such things may imply either a change of attitude toward the method, or a want of confidence in its administration, or, like certain popular comestibles, a blend of both. But, no matter which it may be, the explanation reflects a state of mind just now very prevalent and by no means confined to any particular subject. Probably no one within the sound of my voice is altogether satisfied with conditions as they exist. The public mind is troubled, perplexed, excited. There is a general want of confidence and a corresponding unrest. The depression will not last. Hope will revive and confidence eventually return, but not as a result of the lowering of our standards. Many prate of service to democracy and in the name of this much-abused shibboleth would seek to popularize all learning by relaxing the tests of toil and self-denial; but, if we believe in democracy and do not wish to exploit it, we should resist such proposals as the greatest disservice to democracy that could possibly be rendered. Democracy will justify the faith of its true believers by its strivings for better and higher things.

In moving in a babel of sights and sounds the present generation is not exceptional. The predicament is characteristically human. Like the hosts on the plains of Troy, we still struggle on in the midst of ululations. Some think more than they speak, but the preponderance of those who speak more than they think is so great that the volume of sound necessarily becomes confusing. Here again we must invoke the principle of relativity, lest we permit our attention to be wholly preoccupied and our senses benumbed by the diverting clamors of the moment. From the deadening effect of such a situation we can extricate ourselves only by rising to higher altitudes, at which, as we listen to the echoes of our historic past, we can also pick up the beacons that light the ways of human progress.

Plato, in his Republic, depicts an inspiring spectacle in which mounted horsemen carry torches which they pass one to another during the race. Such is and always will be the office of those who perpetuate the deeds and learning of the past for the benefit of the future. The succession is unending, and those who are to replace us await in turn our testimony, our precept and example. Even today we can hear in advance the eager inquiry for the signals. No responsibility could be more grave, no opportunity more exalted, for to us is committed in our own time the sacred trust to see to it that the torches handed to ourselves are borne on with well replenished flame to the succeeding generation.

CONFERRING OF HONORARY DEGREES

February 22, 1924

By Provost Josiah H. Penniman, Ph.D., LL.D.

CLARENCE STANLEY FISHER

Doctor of Science

Distinguished son of this University in the course of architecture, through your undergraduate course and in the years that have followed you have been making for yourself a place among the greatest archeological investigators. In 1898 you were appointed architect of the Babylonian expedition of this University to Nippur. In 1900 you became research Fellow in Babylonian Architecture in the University Museum. Later you did notable work in connection with the archeological expeditions of Harvard University, excavating in Samaria and Egypt. You were Assistant Curator of the Egyptian

Department of the Museum of Fine Arts in Boston, spending the winters in Egypt at your special work. In 1913 you were director of the American School of Oriental Research in Jerusalem. 1914 you became Curator of the Egyptian section of the University Museum, in which capacity you have been working in the field almost continuously in Egypt and in Palestine, where remarkable discoveries have resulted from the University expeditions. You are the author of important books and articles on the subject of your excavations.

In recognition of your notable career and your contributions to our knowledge of the remote past, the University has invited you to be present today to receive its honorary degree.

FRANK AYDELOTTE

Doctor of Letters

You have been invited to be present today because of your years of faithful and fruitful devotion to the work of a college teacher, your authorship of valuable books and papers, particularly in the field of English literature and language. One of the earliest American holders of a Rhodes Scholarship at Oxford, you have by your efforts assisted in the work of binding together more closely the two great English-speaking peoples. Chosen as the President of Swarthmore College, you are, by your wise and efficient administration of affairs of that important institution, displaying qualities of leadership that make you a force in American education.

JOHN HENRY MAC CRACKEN

Doctor of Letters

You have been invited to be present today in order that the University of Pennsylvania may, by the conferring of an honorary degree, give public recognition to your attainments as a scholar, your qualities as a man, your contributions as teacher, writer and administrator, to the cause of higher education which have already been honored by your election to the presidency of Lafayette College, a high office which you fill with distinguished ability.

CHARLES MERRILL HOUGH

Doctor of Laws

Graduate of Dartmouth College, distinguished practitioner of law, United States District Judge of the Southern District of New York, United States Circuit Judge, author of important legal decisions, you have been invited to be present today to receive public recognition of your career as one who throughout his life has kept before him the fact that "Justice is the greatest interest of man on earth."

RICHARD BEATTY MELLON

Doctor of Laws

Your life, characterized by a modesty and unselfishness that have impressed all who know you, has been filled with deeds which demonstrate your profound interest in the problems of humanity. In the world of business you have exerted an influence that has been truly constructive and, therefore, helpful. To the task of easing the burdens and sufferings of others you have given of yourself in your aid to hospitals and other institutions. A founder of the Mellon Institute of Industrial Research, to higher education, particularly in the field of scientific research, you have made notable contributions not only by the support of such work but by your constant encouragement of those who have been engaged in it. Every movement and institution with which you have been associated has been benefited by your presence. As one of the most distinguished and useful citizens of the Commonwealth, you have been invited to be present in order that the University may by the conferring of a degree give public recognition to the great services you have rendered.

JOHN BASSETT MOORE

Doctor of Laws

Son of the University of Virginia, honored by other universities here and abroad, Professor of International Law and Diplomacy at Columbia University, Assistant Secretary of State and Counselor of the State Department, member of many international commissions, member of The Hague Court and of the Permanent Court of International Justice, member of learned societies of America and Europe, author of numerous important books on national and international legal, diplomatic and historical subjects, one of the greatest authorities on International Law, you have been invited to be present today not only as the orator but also that the University may give public recognition to your personal qualities, to your scholarship and to your distinguished career by conferring upon you a degree.

IV.—Baccalaureate Sermon

By President Josiah Harmar Penniman

The Baccalaureate Sermon was delivered by President Josiah Harmar Penniman in the auditorium of the University Museum on Sunday morning, June 15, 1924, at 10.30 o'clock.

One of the most disturbing facts about life as we observe it is the failure of the brilliant and promising youth to continue brilliant and fulfil in later years the early promise. This is due in part, I believe, to neglecting to fix the eyes upon a sufficiently distant goal. Life is not a sprint. It is a Marathon race. The distant goal kept ever in the mind sanctifies and sweetens life. A faith in the goodness of life is necessary to make life endurable. It was faith that sustained Jesus in his daily ministry among unbelieving, unkind and scoffing persons. He knew what he was doing. He knew its ultimate purpose. He was working for those very scoffers, though they knew it not.

Some physiologists and some psychologists have advanced the idea that there is a moral deterioration that sets in in middle life. That this is necessarily true cannot, I think, be demonstrated, for there are too many exceptions. There are, however, enough instances of it within our own knowledge to give us pause and make us think seriously whether we may not be responsible for deterioration if it should appear in our own lives.

Many examples from history may be cited. It has been said that "had Henry VIII died young he would have appeared as a hero and not as a monster. Nero, when the pupil of Seneca, had excellent inspirations. In reading Plutarch's life of Alexander one is struck with his deterioration of character, from the earlier warmth and generosity to that later caprice and cruelty, which showed in his alienation from Aristotle, and in the murder of his old friends, Clitus and Parmenio."

A brilliant youth does not necessarily predicate a brilliant maturity in old age.

My thoughts have been centered recently upon the doctrine of the immortality of the human soul and some of the practical effects of a belief in this doctrine upon our conduct of life. That the soul is something different from the body and is separated from it when physical death occurs, is the commonly accepted belief. Of that particular question, it is not my purpose to speak this morning. I wish rather to present to you, as not inappropriate upon such an occasion, the thought that the life time of the soul is not measured by the life of the body and, therefore, we see often the soul of youth inhabiting the body of old age.

To the ever-recurring question, what is the object of human life on this earth, we may reply in the words of Keats that this world is "the Vale of Soul Making" and the object of a man's life is to develop or make his soul. Socrates said:

> I do nothing but go about persuading you all, old and young, not to take thought for your persons and properties, but first and chiefly, to care about the greater improvement of the soul.

The thoughtful man's conception of intellectual and spiritual life is that there must be growth, progressive, continuous, so that maturity and ripe old age, measured as we usually measure life, should find the soul enriched, inspired and enthusiastic to press on to further expansion and development, though the body may have lost its strength and resiliency. The very conception of the immortality of the soul involves this. One of the saddest figures in literature and myth is that of Tithonus, for whom immortality on earth was asked, but not immortal youth. With a belief in the immortality of the soul there comes the obligation to continue to grow, if we are to be true to what we profess to believe.

Keats was right—this world is "the Vale of Soul Making" and there is nothing more absorbing than that process. To see a plant or an animal grow is interesting, but vastly more so to see a soul grow. Anacreon despaired in his old age—life had nothing more for him. Mimnermus, of Colophon, of whose writings we have only fragments, lamented the irreparable loss of youth. He knew or thought nothing apparently of the deeper joys of maturity and age.

The sadness of Commencement days so often dwelt upon by valedictorians is absolutely overwhelmed and swept away by the joy of having attained one of the many goals to be reached successively in the long journey of life.

We hear much talk about the undue prominence given to the athletic performances of youth and the small interest apparently taken in the intellectual accomplishments of college students. Those who do this talking fail to recognize the fact that youth is the time for athletic achievements, and mature years the time for contributions to the intellectual and spiritual development of the race. The world's best records in athletic events are made by youths in the twenties. The world's great achievements in scholarship come, if at all, to men of more than twice that age. The body reaches its perfection early—the mind and soul late. The development of the soul is a life-long process.

The loss of youth is only physical. The spirit need never grow old, as we may see in the lives of many persons who, with the passage of long periods of years, retain souls full of youthful enthusiasm and interest, though mellowed by depth and quantity of wisdom and knowledge gained by experience and observation. Life has been compared to a game that requires rare skill to play it well. The expert who plays a game derives from it keener enjoyment than does the tyro, and he plays it better. The art of living may be learned and a knowledge of the rules of the game is necessary, and practice is the only thing that makes perfect. In any ordinary game no one likes to be a "dub," but how sad it is to see stupid persons who are mere "dubs" at playing the most interesting game of all, the game of life—the game of developing their own souls. These usually mistake the pleasure of the moment for the good of all time. They have no set purpose in life. They waste time and strength on things that have no permanent value, instead of devoting their energies to the acquisition of knowledge or the exercise of their minds in communion with the great spirits of the past and present, with whom they have the privilege of intimate association through books. They make no effort to solve problems in the world of matter and force. They make no additions to the world's knowledge or even to their own. They look for excitement and entertainment to sources outside of themselves and lay themselves open to the condemnation of a Wordsworth who preached the truly Christian doctrine that the Kingdom of Heaven is within.

On the tomb of Pasteur are his own words—

Happy is he who carries a God within him,
An ideal of beauty to which he is obedient,
An ideal of art, an ideal of science,
An ideal of the fatherland, an ideal of the virtues of the Gospel.

Is it not within the power of each of us, with a soul gifted with the possibilities of immortal youth, to face the future as the time of greatest interest and opportunity? May we not, with the old boys of Harrow, sing, as the years pass, no song of regret over departed youth, but a manly song of eagerness for further victories to win—

Forty years on, growing older and older,
  Shorter in wind as in memory long,
Feeble of foot and rheumatic of shoulder,
  How will it help you that once you were young?
God give us bases to guard or beleaguer,
  Games to play out whether earnest or fun,
Fights for the fearless and goals for the eager,
  Twenty, and thirty, and forty years on.

We cannot forget or ignore the past. It has been said that "the past has stained every window through which light streams into the mind, and we cannot, if we would, see things apart from its coloring."

What wonderful coloring has been given to your present by the light of your past four years of University life! How greatly enriched you are by the experiences through which you have passed! How deeply you appreciate now the fact, as you face the future, that the material world is not the world in which your spirit lives! Houses and bridges and streets are not merely building material. They are building material embodying the thoughts of their designers and bearing evidence of the skill of the artisans who built them. Every structure is wonderful because it is the embodiment of a thought that was once in the mind of a man. There is mind in it, an idea in it, otherwise it would still be only building material. It is not the stones of the Pyramids or the Sphinx that amaze us, remarkable though they may be for size. It is the stones in their proper places, put there by man in accordance with a vision vouchsafed to his mind and for a purpose. You see in the form and arrangement of the stones, and in the difficulties overcome by thought to place them where they are, an evidence that a man's thought, immaterial and apparently evanescent, may be made permanent, though his physical frame through which his thoughts worked on matter may have mingled again with the elements.

> John Brown's body lies a mould'ring in the grave,
> But his soul goes marching on.

It is the soul and mind of man that is permanent. The personality is the one great thing of importance. Divest it of its narrowness and unloveliness and the creed of John Bunyan as set forth in Pilgrim's Progress is the universal cry of humanity. It is the thought in it, uttered as only the heart of man can utter it, that makes the book immortal.

"Progress" is a word that contains both history and prophecy. It gives us a challenge to our spiritual manhood. Nothing is more pathetic than a man or woman who has ceased to grow, whose mind is closed to new ideas and who has become, because of that very fact, a block in the path of others. When you cease to move forward, cease to grow, deterioration is not slow to set in. Life is dynamic, life is progressive, and growth is a law of our spiritual being.

That spiritual progression of which Tennyson wrote in "In Memoriam" is a fixed belief of thoughtful men today. All the great poets have sung of it in one way or another—Spenser, Keats, Wordsworth, Tennyson, Browning.

> Rise upward, working out the beast
> And let the ape and tiger die.
>
> The one far off divine event
> To which the whole creation moves.

These are words of Tennyson. Browning wrote "On earth the broken arcs, in heaven a perfect round," continual progress toward an ultimate perfection.

The ideas of the present are never final—they point forward. "Man is greater than any system of thought that he has devised." He need not be disturbed by differences of opinions. All may be wrong, all may be right in part, or some a mixture of truth and error, and yet the race moves on—the sun rises and sets. Opinions and theories are not ultimate. They are merely efforts of man to express the Eternal to himself or in nature, and often he fails in his efforts to express it, but the Eternal remains the Eternal.

> Our little systems have their day,
>   They have their day and cease to be;
>   They are but broken light from Thee,
> And thou, O Lord, art more than They.

In what I have said to you I have endeavored to avoid dogmatism. My desire has been to suggest subjects for your consideration, as you look forward to your lives outside of the sheltering walls of the University and away from your teachers. No one can share with you responsibility for your own life. It is the priceless treasure entrusted to your keeping. Will you keep your talent wrapped in a napkin, useless to yourself and to others, and thus incur the displeasure of your Lord; or will you use your talents to gain other talents, and receive the praise, and a larger dominion?

V.—Commencement Day

June 18, 1924

The One Hundred and Sixty-eighth Annual Commencement Exercises of the University were held in Weightman Hall on Wednesday, June 18, 1924, in two sessions—one at 11 o'clock, and the other at 2.30 o'clock. President Josiah H. Penniman presided at both sessions.

The speaker at the first session was Solomon S. Huebner, Ph.D., Professor of Insurance and Commerce in the Wharton School, and at the second session the address was by Walton B. McDaniel, Ph.D., Professor of Latin in The College.

The Programme of Ceremonies at each session was as follows:

ORCHESTRAL PRELUDE

ACADEMIC PROCESSION

INVOCATION BY THE CHAPLAIN OF THE DAY

HYMN—"America"

INTRODUCTION BY THE PRESIDENT

ADDRESS

HYMN—"Hail! Pennsylvania"

CONFERRING OF DEGREES IN COURSE

ORCHESTRAL INTERLUDE

CONFERRING OF HONORARY DEGREES

HYMN—"Old Hundred"

BENEDICTION BY THE CHAPLAIN

ORCHESTRAL POSTLUDE

ADDRESS, FIRST SESSION

By Dr. Solomon S. Huebner

We are assembled to honor and congratulate the Class of 1924. Today marks the entrance of another of Pennsylvania's graduating classes, nearly fifteen hundred strong, into the field of social and economic service.

To me has fallen the task, an honor and responsibility I deeply appreciate, of giving to you, on behalf of the University, a few words of counsel that may prove useful during the years ahead. This I shall endeavor to do by drawing upon my own field of specialization, namely, economics, or "the science of business." Any of the other subjects of the University's curriculum would serve equally well as a source of object lessons for human guidance. But I feel most at home in the field of economics, and know that our collegiate business subjects also have their historical background, their technical and scientific aspects, their soul side as distinguished from mere mechanical routine, and their limitless possibilities for further development and usefulness.

The duration of man's working life is severely limited, and every year is, therefore, precious. If all goes well, our active working life is approximately forty-five years before the age of retirement, or the so-called economic death period, is reached. You have proceeded wisely during the past four years in preparing intensively for the time that remains before the final consummation of your vocational careers. The great question is: What will you do with those working years? Let us concern ourselves for a few moments with that question. Allow me to comment briefly on three concepts that I regard as fundamental, and that I feel should govern our working life if it is to be successful, as judged by the true standards of quality and usefulness of output, and of happiness and joy to the worker in his daily labor. The choice of a life's vocation is the greatest economic step that man is called upon to make. Decent remuneration for personal and family support must, of course, be one of the considerations in taking this step, but it is by no means the only one. Happiness in one's daily toil, consciousness of the work performed, a feeling of being bettered in mind each day, and love and respect for the cause represented, are also essentials. It is inconceivable that anyone can tie up with a vocation for life without wanting, in the daily practice thereof, to be constantly conscious of a feeling of joy and enthusiasm for the work that should claim undivided attention.

Graduation from a university is customarily regarded as marking the transition from educational training to practice. And we are apt to view practice as involving only mechanical routine and as dissociated from the need for continued study. I would rather regard this occasion as marking a fitting end to one stage of study and educational training and the auspicious commencement of another. In other words, from the standpoint of study and training, you should regard yourself as just beginning where you are now leaving off. Your graduation today should not be construed as an end of your educational endeavors, and I most earnestly urge upon you the necessity for continued study throughout your working life.

This University has sought to mold you during four years of the formative period of your development. The numerous subjects of study that you have pursued have opened to you a broad vision and have given you an intelligent interest in human affairs. They have opened to you vast sources of working materials, and have equipped you with the proper method of approach. They have served to make you more efficient in your immediate work and to enable you to appreciate better the responsibilities involved. They have given you the power to attack and analyze the different problems that are bound to arise in your particular calling, and to enable you to reach and apply sounder judgments. The purpose of the University has been to start your tendencies in the right direction, by inculcating in you the habit of study and of clear thinking and analysis.

With respect to the approximately forty-five years before you, these acquired abilities for service constitute a wonderful heritage. Because you possess them, more is expected of you by the public than from others. Their continued possession in the competitive practice of your calling, however, is very uncertain unless you strive to keep abreast of the times. Every calling is undergoing great changes in method, application and extent of usefulness. Practitioners of long standing—in medicine, teaching, engineering, organized business pursuits and elsewhere—everywhere seem to voice the thought that the sophomore or junior year of today reaches in educational content the maximum attained at the end of the senior year at the time of their graduation. Such progress is bound to continue and he who does not march along will soon be outdistanced. More inefficients burden the community today because of neglect to master the current progress of their calling than through any other cause. Every organized vocation has its associations, local, state and national, and its current publications by way of journals, addresses and books. It is to your interest to keep up with current developments, through these and other mediums, not only in your specific field, but also in those that are closely allied. Efficiency in your service to your fellow-man requires that you continue your studies. Study is a habit. Cease to study for a time and you will soon not study at all; and if you cease to study, you will cease to think; and if you cease to think, you will cease to grow.

Probably the most important new development in economic thought will be the proper recognition of the economic value of a human life. It is dawning upon us that life values after all constitute the greatest values in any community, and far exceed the total valuation of all material things. The capitalized value of the current earnings of our adult population, even at an ordinary rate of interest, easily exceeds the aggregate national property values from six to eight times. In fact, property values would be non-existent were it not for the life values—the character, ability, judgment and industry of persons—that gave them being. For years every important institution of learning has offered courses in economics, corporation finance, commercial credit, investments, business organization, wills and trusts and taxation. Yet all of these subjects have thus far been organized essentially with reference to property values, and life values, although much more important, have either been ignored or touched upon superficially. The time is not far distant when these applied economic sciences, now so fully prepared and so generally taught with respect to property values, will also be extended to the scientific treatment—to the economic organization, management and conservation—of our life values. We shall soon apply to life values the principles now used in connection with property, even to the extent of capitalizing them with bonds, of subjecting them to the principles of depreciation, and of using the sinking-fund method to assure realization of the contemplated object whenever man has a future family or business obligation to fulfill that involves the hazard of uncertainty of life.

I have stressed the economics of life values with a view to emphasizing the thought that our working life is not to be regarded lightly. Every person is a trustee of his or her life value. Your life now has an economic value measured by what you can earn in honestly serving others and that value has been increased by your University course of study and has been directed in its future tendencies. But your course of study cannot do everything for you. Every leading vocation is a life study. As already stated, you should regard yourself as beginning where your graduation now leaves you. Also bear in mind that a life value has no limit to it. Its full par value is what you make it. It may keep on increasing year by year during the whole of the allotted forty-five years. Not to continue your studies is apt to bring about a standstill condition. This means that your life value will also remain static, whereas it ought to be increasing all the time. But I will go even farther. Refusal to continue your studies, and resting on your oars, will likely result in the dissipation of much that you now know. Whenever we speak of values in these days, we also think of the conservatism of those values. Your problem is to conserve, through continued and consistent effort at mental development, the life value that you now possess.

The second concept that I wish to refer to is that of honest service to your clients and to your community. What you have gained in training and will gain through continued study, is to be employed in a useful manner. Real joy in living will depend largely on how you use your abilities. What of the greatest possible knowledge and skill if there is not an honest application thereof to those who apply for the service? "For what shall it profit a man if he shall gain the whole world and lose his own soul?" Those are the words of the Greatest Teacher, and in vocational life they have a very direct bearing upon true success. Honest service as the first consideration, and monetary gain as secondary, is the true professional attitude. This has been the time-honored concept in various professions. The time has come to insist that every calling shall have the same high standard of personal conduct and business ethics.

In referring to present economic progress we are apt to visualize only great changes in motive power through electricity, oil and other agencies, and development in speed and volume of production. Our viewpoint again relates essentially to property values, and overlooks the life values. The economic changes referred to, although very important, do not represent the outstanding feature of this industrial age. Instead, it is the effort to inject the professional and service ideas into practically all leading business pursuits that is today the most far-reaching industrial step forward. And the interesting thing is that the movement is voluntary. It is being initiated by business men themselves, instead of being forced through governmental action. Wherever business men are acting jointly, and in nearly every business this is being done through local and national associations, the thought of professional service is now the moving spirit. Every organized market, whether in securities or in produce, has stated its purpose in the preamble to its constitution to be "the maintenance of high standards of commercial honor and integrity among its members, and the promotion and inculcation of just and equitable principles of trade and business." Throughout this nation hundreds of Chambers of Commerce and Boards of Trade are now waging a determined campaign in the interest of higher business ethics in every line of trade and industry. All are prompted by the knowledge that honesty pays best. In this movement universities and university men must be leaders. Speaking economically, the benefits derived by thus elevating the general level of life values will greatly outstrip any social gain obtainable through increased volume of production.

In religion, service has been defined as "the devotion of heart and life to God." From a vocational standpoint, it may be defined as "the devotion of heart and life" to client, to the community, and to the calling under consideration. Service represents the soul part of your vocation, and the soul aspect is of much greater consequence to joy in living than the mechanical and money phases. It means the application of the Golden Rule, the greatest rule for human conduct, in your daily work. Whenever you act for a client, ask yourself this question: Have I given my client, in view of his needs, which I have made every conscientious effort to ascertain and understand, and without regard for my selfish interest, that service which I would have recommended to myself if I had been in the same circumstance? If you can answer "Yes," you have acted professionally. If you can't, you have not. In all our business relations we should keep uppermost in mind the giving of an honest product at an honest price. He who does not observe this principle will soon be discovered and deserted. He who does observe it, will also be discovered, but will be sought after. And don't think continually about your immediate compensation. If you do, it will be reflected in your eye, in your voice, and in your general bearing. Your ring will not sound true, and you will not be convincing. Your compensation will be greater in just about the proportion that you forget it in your daily work.

What I have said with reference to service to the client also applies to the community. Every useful calling is inherently related to the public welfare, and identifies itself in some manner with the constructive movements that have for their aim the uplifting of the community. Every University graduate, therefore, as a representative of his vocation, should not only strive to set an example through good character, but should participate actively as a citizen in the educational, welfare and all other civic constructive programs where his abilities may be useful. Here, again, forget immediate compensation. Such community effort is sure to be rewarded. You can only receive reward, satisfaction and happiness as you help to give the same to others. Remember the immutable law: Cast thy bread upon the waters, for thou shalt find it after many days.

And now, allow me to refer to another concept of the greatest importance, namely, the avoidance of carelessness or folly in our efforts at conserving the earnings derived from our vocational work. This matter is of vital significance to the present generation, with its proclivity for free spending and for abnormal loss through unwise investment. Failure to observe care in these matters is the cause of much unhappiness and many crushed spirits. Less than ten out of every one hundred men, beginning at age twenty-five, leave estates today which, at six per cent, will yield an income of only fifty dollars per month. On the same basis, only one out of every four leaves an income of twenty dollars a month, and the majority leave practically nothing.

While service to the client cannot be over-emphasized, we also owe a responsibility—a service—to family dependents, and often also to business associates. Life has its personal economic side, by way of support of self and dependents, and there is no escape through forethought. It behooves every one to play safe economically. Thrift, and care in the management of the private estate, constitute an economic factor of safety, in the same sense that the engineer uses that term. It is essential that we make economic provision with respect to the future, and that we do not live only in the present. Avoidance of duty in matters of thrift, careful investment and insurance, places unjustly a burden upon others. This is contrary to the concept of honorable service, and in this case to those whom it is our special duty to support.

In his deed of gift, when founding the Wharton School, Mr. Joseph Wharton set forth, among other provisions, three purposes of the School that deserve mention in this connection, namely: (1) "To fit men for the wise management of their private estates"; (2) to emphasize the necessity of "careful scrutiny of income and outgo, whether private or public, and of such management as will cause the first to exceed (even if ever so slightly) the second"; and (3) to inculcate the thought, worthy to be framed and hung in every home, of "the deep comfort and healthfulness of pecuniary independence whether the scale of affairs be small or great." These thoughts carry for us a deep significance. They serve as a guide in the accumulation of a decent competency that acts as a factor of safety to meet future responsibilities. It should be our aim to bring certainty out of uncertainty in our economic life whenever we can. The accumulation of an adequate estate is one of the ways suggested. But always remember that it takes time to save. No one with dependents on his hands has the right to resolve merely that he will do thus and so, by way of saving and investment, in a stated number of years. The great danger is that the savings period may be cut short. A mortality table illustrates this danger in an unerring manner. It is therefore absolutely essential that every life value, upon which others depend, should be protected with a guaranteed potential estate. This can only be accomplished by securing the promise from some insurer that there will be paid promptly, in replacement of the lost life value, an amount equal to that which the decedent had resolved to accumulate, but was prevented from realizing because of death or disability.

Speaking economically, society should be so organized that the present generation should give the fullest opportunities to the next generation. That is progress. To have the coming generation, owing to unfortunate contingencies, burdened with the support of the present generation is retrogression. If all goes well, "pecuniary independence" is best realized through thrift and sound investment. But if things do not go well, and we have no right to assume that they will, insurance alone, through the guarantee of a potential estate, can give that "deep comfort and healthfulness of pecuniary independence" already referred to. To run the gauntlet of gamble and succeed does not mean a victory, because to any thoughtful person much more than a full price has been paid through constant fear and mental anguish.

The University of Pennsylvania will prove to be the source of much of your future inspiration and success. In learning, she is the connecting link between the past and the present, and between the present and the future. Frequent thought of her will rekindle in your memories many of the things that influence life for good. Your Alma Mater, therefore, deserves your devotion and loyalty. Think of her often. Be liberal with her. But most important of all, speak for her through your character, your devotion to service for others, and your dynamic leadership in all constructive movements. The University looks upon you as her representatives in the various walks of life. You, her sons and daughters, are, after all, her best advertisement.

ADDRESS, SECOND SESSION

By Dr. Walton Brooks McDaniel

We call this commencement, but I am afraid that many of you look upon these exercises as the finale of pretty much everything that you don't want to end except the examination period, and the commencement of almost nothing, unless it be of those weeks of expectancy when as lawyer, doctor or dentist, you are waiting like Micawber for something to turn up. Nor do you much care who initiates your medical or your legal practice and gives you that first fee, the sensation of which you can never afterward forget. The only matters of importance are that your handsel shall be forthcoming promptly, your patient recover from your treatment, your client from his payment. Dead patients make poor paymasters, clients cast in their suits have short memories for the fee.

After assembling an audience where escape would be neither polite nor even possible, the authorities introduce as the speaker an entire advisory board epitomized in the person of some other worldly professor who proceeds in his brief period of power to pour forth more advice than an idiot could use in a lifetime or a man of any sense would use at all. Finally, the speaker says "in conclusion" and concludes, unless you have hard luck and he says "lastly" and lasts, and you salute him noisily with the usual manual gesture that signifies a grateful though belated relief. Thereupon your counselor goes home, confident that his wisdom has saved scores of the unworldly from life's worst pitfalls, until his discerning wife tells him that if his address had evidenced a little more sense, his audience might have taken him for half-witted.

In the meantime the professor's hearers are scattering to the four winds of heaven to do all the things he urged them not to do. Thereby they become highly successful men and women and eventually contribute bountifully to the fund that alleviates the indigence of their adviser in his declining years.

You can see that I am cherishing no illusions about this monitory job of mine. I, too, have been lectured and warned by wiseacres of every age, sex and persuasion, and I know just what you anticipate is coming from me. Accordingly it is now no more than my duty to realize as rapidly as possible your worst forebodings and play the Magnus Apollo as only a professor can.

If we could only abstract ourselves emotionally from such unreasoned convictions of our own as depend in the last analysis on nothing more than faith, we might be in a position to judge dispassionately the irrational beliefs to which others cling, whether in the range of religion or of superstition. But in such matters human beings have always been intolerant and I presume they always will.

For the moment, I would call your attention to one of the credulities of the old Romans which we cannot, of course, accept, but which ought not perhaps to convict them in our estimation of any greater stupidity than some of our own cherished beliefs would assuredly convict us in the judgment of a Cicero or a Caesar. They were persuaded that when a man was born into this world, a divine spirit was born with him, his own private angel to watch over him as long as he lived, a sort of other self who joyed and sorrowed with him and eventually died when he died and yet enjoyed a sort of immortality thereafter, also. To this alter ego or spiritual representative of his fleshly self, they gave the name of Genius.

If Horace decided to indulge his Genius with wine, he, the poet, drank the Falernian and his spirit received some sort of Barmecidal satisfaction for which he had to be grateful. In Volsteadian America, of course, neither of them could have had even a vicarious indulgence. There would have been neither spirit nor spirits.

But at Rome, not only did every man have his Genius or genius, but every woman had her private Juno, a deity possessed of the same nature and much the same functions as the male. Indeed, the Romans went farther. If every individual had a special tutelary divinity and spiritual self, there seemed to be no reason why a collection of individuals should not have its divine counterpart also; and so we find that whole communities, corporate bodies and the like, all had a separate genius of their own.

Accordingly, on this particular day, if on no other in the year, Romans would have been quite sure that the spirit of the University of Pennsylvania, the Genius Universitatis Pennsylvaniensis was here present "in propria persona" to preside invisibly over everything that takes place.

I say Genius with no intent to slight the feelings or ignore the claims of you young women who may justly urge that your Alma Mater has a Juno. Eve long ago entered Penn's Garden of Eden and, to some, dear old Paradise can never seem the same again. Only the matriculation of Adam at Bryn Mawr or Vassar could arouse so many apprehensions, and may that God forfend.

But though in my daily climb skyward by the "heavenly stairs" of College Hall—if that can be called a climb which is more nearly a warlike escalade—I meet many a Juno in the flesh, I have yet to see the University's female spirit, and, being nothing but a male myself, I must assume the presence of the Genius and not the Juno here.

Please do not think, then, that it is merely some Gamaliel, some would-be Nestor, who is addressing you this afternoon. Say rather it is the ever-living genius of this great and venerable University that is trying to speak through me without too much loss of its initial power and wisdom. In the nearly twenty-five years that I have served under our eminent and rarely experienced President and Provost, his choice of me as spokesman is the only serious slip I have known him to make. He must have trusted rather to his numbering of my years of teaching than to a sound appraisement of my wits.

Well, what has the Genius Pennsylvaniensis first to say to you, who, though you may abhor advisers and advice, must yet for the moment listen to them both?

Among the requisites for success in your chosen vocations he would single out as the irreducible minimum that you should really know your subject. Legal learning is the *sine qua non* for every barrister. Big goggles with tortoise-shell rims, backed by looks of wisdom that would excite Minerva's own owl to hooting, will not enrich you doctors, if you have not learned that Angina Pectoris was not a former sweetheart of the man who lectured to you, and that the "profound echymosis" which awed a jury into giving its victim heavy damages from the defendant can hardly be a lasting injury to either health or beauty.

This exhortation to incessant intellectual improvement especially concerns those of you who are going to teach. We cannot have painless pedagogy, until some genius invents workless work, and present prospects are not encouraging for this highly desirable discovery. Bear in mind that though educational theory is exceedingly valuable, not to say indispensable, no amount of mere pedagogical method, whether gathered empirically or second hand, can make up for a lack of knowledge of what you are trying to impart. The knowing what is always more important than the knowing how.

You and I should never forget the story of the man who had woeful trouble in training his pet dog, until one day he sent him to a negro who was said to have great skill in breaking in pups. Sure enough the dog came back a perfect wonder. When the owner asked the negro what his secret was, he replied: "You see, boss, dere's only one way to edicate a dog like that. You must know more than the dog."

Since the intellectual standing of this University in the community of scholars depends very largely upon the amount of research that its graduates do and the quality of the results that are published, it is to such activities that the spirit of this place especially directs your attention as an insistent duty. Nor will those of you who are real scholars be deterred from research of some sort by any paucity of books or poverty of laboratory resources that may long handicap your efforts in some humble institution of learning. In our professions you positively cannot keep a good man down. That is an axiom to repeat in your darkest hour. The greatest discoveries have not come from the richest laboratories, nor do we find our largest libraries cluttered up with geniuses.

Moreover, there is another side to this business of scholarly investigation and output which you future professors cannot conscientiously ignore. Unless you are privileged to occupy a special chair of research, you will owe a considerable amount of time to mere teaching, to the humble human requirements of your students, to irksome committee and administrative work. This cannot be accomplished properly in our American colleges, unless men and women who represent scholarship, pedagogical experience and business capacity all bear a hand together. Don't, I beg of you, ever feel superior to such a co-operation. If you do choose to play the selfish slacker, other scholars who may be actually or potentially better investigators than you will have to carry an unjust share of tedious but necessary labor for the college.

Nor should we forget that while research is everlastingly essential to higher work in the three branches of medicine here represented and in the various sciences and literatures that universities teach, mere publishing can be and often is overdone. It is not the number but the quality of your books or pamphlets that win you national recognition. It requires no Malthus in bibliographies to perceive that our libraries are overpopulated with progeny of inferior parentage. In mythological story, Danaus was the father of fifty children, but they did not compare in quality with the offspring of many a less prolific family. *Non multa sed multum* should be our motto.

In some cases, indeed, publishing becomes a veritable malady, a disease of the very worst sort, because it afflicts everybody else with its results rather than the patient. That which starts as merely a mild case of compilatory over-exertion can, and too often does, develop into what Juvenal long ago called a *scribendi cacoëthes*, in other words an evil propensity to write chronically and voluminously. The poet diagnosed it as *insanable*, that is, as incurable, and certainly in a college professor, its symptoms are often serious enough, a sort of elephantiasis of the head, a tumescent ego, and a general puffiness that no amount of puncturing can deflate. It incapacitates the victim from all attendance at faculty meetings, sessions of committees and college social functions; but he usually retains his ability to reach the bursar's office and secure his monthly stipend. A reduction, indeed, in the amount of the check, while too drastic a remedy for regular application, is nevertheless the only infallible specific that has yet been discovered for the cure of this pernicious disease.

But some of you may say: "I am going to begin my professional teaching in Podunk College, where with difficulty they get out even the annual catalogue of their courses," or "I am going to practice medicine in a community where nobody could even spell the word laboratory. How am I to continue any interest in study and research, much less elaborate anything fit to publish to a world of expectant scholars?" Well, there is one sort of research that the Genius of this University can commend to you that is sadly neglected by many men of sound book-learning, one that can be practiced as profitably in Timbuctoo as in Philadelphia. I refer to the study of human nature. There you have a lifelong task to tax the utmost powers that anyone of you possesses. The best of brains, all the learning in the world, push and pull, nothing can guarantee you success, if you remain ignorant of the *genus homo*, of which you are yourself a specimen, a specimen, incidentally, that can be improved. Ask any prosperous physician for a well-weighed judgment of what secured him his professional advancement, ask any teacher of standing what won him his high repute, and you can count upon his naming as a most effective factor any knowledge he may have had of men and women.

Think how, every day, a doctor has to read the so-called mind of his patient and decide quickly and almost instinctively whether he is the type that requires persuasion, intimidation, scolding, reassuring, jollying or merely information.

Nay more, if the physician had only the ill to deal with, his difficulties would sometimes seem less formidable. But too often he has in addition the whole family on his hands, a family that includes so many mules, donkeys, asses, old hens and maybe curs, that he feels like calling in his brother, the veterinarian, for some collateral assistance.

Then think of the nurse, a woman who is commonly worthy of the noblest profession that is open to her sex, but in some cases not. Sometimes a Nightingale, sometimes she is a bird with a different sort of peep! I have known a physician almost to lose his patient, not because he didn't know medicine admirably and handle the sick with psychological skill, but because he expressed his desires and directions to a head-nurse in such a way that upon his departure she proceeded at once to her tool-chest, picked out a large monkey-wrench and threw it into his therapeutic machinery just where it ought to be running with a minimum of friction. He rubbed her the wrong way, she turned his machinery the wrong way, and as a consequence the patient came near going the wrong way.

Nor is the situation different in my own profession. Certainly in the schools failures are quite as likely to be due to a teacher's inability to work in harmony with colleagues or superiors as they are to any friction with obstreperous or incorrigible pupils. Particularly is it true that men do not always get along well with women, and women with men. In fact, I think that we may well feel grateful for God's mercy in not creating a third sex. There is mess enough already.

Since, however, most of the trouble is due to misunderstanding and not to any inherent imbecility or deviltry in either sex, we always have one remedy available and that is to bring together socially as frequently as possible the men and women of our vocation. Teachers should lend active, cordial support to their professional societies. After you have eaten tripe and sausage a few times with some cantankerous colleague, it is surprising how much less friction you will have with him in the meetings of the faculty of your school.

A couple of friendly glasses of denatured beverage, taken together now and then, may ultimately change the nature of your relationship from that of foe or jealous rival to one of cordial intimacy. Suffering in common gastronomically is likely to result eventually in a common friendship.

If, however, as time goes on, you find that you cannot pull in the same harness with your mates, make a shrewd guess that some of the difficulty lies with you, and change to some other vocation in which good breeding, tact and knowledge of human nature are less essential. Become a bandit, a hermit or a public executioner—in their jobs a little brusqueness or incivility doesn't count.

Some people seem to forget that to be a gentleman one must have manners as well as customs, and that manners after all are as fair an outer index of the inner man as any that we have. As a distinguished hospital chief said to me only the other day, an interne who is constantly in hot water with somebody is self-evidently himself a failure.

Experience suggests another bit of advice for us professional folks: Have a hobby, that is have an avocation as well as a vocation. The study of birds or beetles may save you from brain-fag. You are none the poorer teacher of Latin, if you welcome the first Vanessa Antiopa in the warmth of spring and recognize the Papilio Turnus as he flashes by in the sunlight of June. Botany and zoölogy as a diversion are something more than dissection and the drawing of cells. I know a prominent surgeon who collects postage stamps, and I will wager that it improves the cunning of his hand.

If "Stubby Child," as they nicknamed him at Harvard, was one of the best researchers in the field of English that our country has produced, something of his power may be attributed to his puttering among his rose-bushes during leisure hours. Charles Bennett, of Cornell, the most widely known among our Latin grammarians, was also a grower and a lover of roses, while the most famous Greek grammarian of our English-speaking peoples, William Watson Goodwin, owed much of the health and vigor that in his white old age resembled him veritably to a Greek god, to his skill as a yachtsman. Nor is he the only master mariner whom I have known among teachers of the dead and dying languages. Out of the sea come buoyancy, sanity and health.

But even more important, it seems to me, is the degree to which the professional man accompanies his technical work with purely cultural studies and esthetic pleasures.

May I refer to a personal incident to illustrate what I have in mind?

I was lying seriously ill with typhoid fever in the Massachusetts General Hospital. Inasmuch as my mind was to play no small part in the possibility of recovery, it was of no slight significance to me, as I now look back upon the experience, that the eminent and sagacious physician who attended me took occasion on his first visit to speak at great length about my favorite poet. I calculated that a scientist who was big enough to find time to memorize and interpret sympathetically Robert Browning was big enough to get me well, and he did.

But over and above the fact that in the professions the quality of one's intellectual life considerably determines the quality of one's clientage, we miss so much, if we ignore the amenities of life. Art and music and literature will be least of all dispensable for such as you.

Of course, familiarity with the versical freedom of an Amy Lowell will not facilitate the extraction of an eyetooth that seems to be anchored to the roots of the nose, nor will the worship of Wagner nor even the ability to sing for one's own amusement, without being murdered, win a case in court, nor will devotion to the sculpture of Manship or of Macmonnies enhance the surgeon's skill in lithotomy, nor even love of the cubists improve one's teaching of geometry. The point is that all such interests make the man himself more interesting and as a rule much more happy. To work without living is, indeed, as stupid and reprehensible as to live without working.

Take the pleasures and profit of literature, for instance. Old Father Ennius was quite right in maintaining that a man who was master of three languages possessed thereby three hearts or minds instead of one.

Intimate, first-hand acquaintance with other civilizations through reading and travel broadens and deepens the culture that is derivative from our own. The results are commonly evidenced not merely in such matters as the ability to read the foreign technical journals of your profession and so really keep abreast of its progress in the world, but in such particulars as the pronunciation of your own vernacular, the nicety of your enunciation, the quality of your English vocabulary, the ease with which you avail yourself of its resources, aye, even your social adaptability, your professional manners, your degree of tolerance and humanity toward your fellow-men.

And, then, there are various by-products that accrue to one from linguistic and other study. One of them is social safety. We are spared such slips as a friend of mine once described to me, a woman of such veracity that she would never hesitate to spoil a story by telling the truth. She was one of a dinner party the sumptuousness of which may best be suggested by the statement that the dinner service was all of solid gold. Conversation turned to French literature, whereupon one of the guests loudly declared her aversion to George Sand: She didn't care for *his* novels at all—a perversion of gender that is commonly enough ascribed to nouveaux-riches who are old in ignorance—but then Mrs. Malaprop capped her first self-revelation by adding ardently, "But I simply dote on Emily Zola!"

But the Genius Universitatis Pennsylvaniensis, true to the feelings of fraternity that prevail among institutions of learning, would also stress the many advantages you may yet derive from the universities of foreign lands.

Sojourning, long ago, in Palermo, Sicily's fairest city, I became acquainted with a professor of the local medical school. One day he remarked to me that in Vienna of his time clinical lecturers and consulting specialists never told a hospital patient who was seriously ill the truth about his malady. Not only did they lie to him deliberately, but they regularly used in his presence some language that he did not understand, preferably Latin. This was a tribute from Ananias to the value of the language I happened to teach which recalled the fact that during the Middle Ages Latin was duly recognized to be the native speech of the Devil, a conviction that is by no means dead yet among my college students.

However, my acquaintance's advocacy of lying raised with me the whole question whether, irrespective of any ethical conflicts, the practice of mendacity would not, in the long run, impair, if not actually ruin, a doctor's best chances to effect a cure. So often the sick supplement the realities of pain and weakness by terrors of the imagination that are quite as toxic as the disease itself. Thanks to the Satanic ingenuity of quack advertisements, and to the stimulus that popular instruction in medicine is giving, he is, indeed, a dullard, who cannot convert his canker into a cancer, flatulence into cardiac trouble and the plain, garden-variety of backache into the last stages of nephritis. The neurasthenic in particular need confidence in their physician. Once detect him in deceit, and they distrust his statements forever afterwards.

Most Americans are not Viennese, and our real experts have other methods of handling the hyper-imaginative than by lying to them.

If such experiences as the one I instance from my stay in Palermo stir the layman to thought, think how they may quicken the philosophy and modify the practice of the professional physician himself.

Teachers, too, gain much by observing the pedagogy of foreign lands. In my student days at the University of Berlin, along with much that was constructive, I learned more things not to do than in all my previous years of training put together. Nor will France and Italy fail one in models to imitate and in examples to avoid, as I can also attest from personal experience.

But right here in America you can find all necessary spurs to progress in your chosen career. For instance, it is enormously stimulating to attend the meetings of learned bodies and to submit your own scientific findings to professional criticism of a public character. The man who never presents or publishes a scholarly paper has no right to grumble at his personal obscurity.

There are about six hundred medical gatherings in this vicinity annually. I wouldn't knowingly call in a man who never attended any of them even to treat a hang-nail or a gum boil. I should be fearful of his ignorance. It is that sort of ignoramus, indeed, who first scares a family sick by saying that baby has a deadly attack of measles, but then relieves their anxiety by announcing that it is nothing more than a mild case of leprosy.

Membership in the profession carries with it high privileges that are not so accessible to men in business life. Mercantile pursuits cannot be followed with success without a steady eye to financial gain. Trade not infrequently involves in the last analysis getting the better of the other fellow; while most of you will be busy getting the better *into* the other fellow. If you don't, you fail.

Lawyers give countless hours to the helpless poor, and I have yet to know personally a single physician who is not most considerate in money matters. The only possible exception in my own experience happened to be an osteopath to whom in a moment of complaisant imbecility I once entrusted myself. After kneading my perishing body, he needed my perishing money proportionately. But I got just what I deserved: I was doubly pinched.

Nor is the teaching profession in any way behind the others in its unobstrusive but unremitting philanthropies. There is, indeed, something pathetic about the self-sacrificing work that many an underpaid teacher is doing merely because he realizes that his calling is, like the minister's, a consecrated job. Gratuitous instruction, hours of friendly counseling, extra-mural guidance are so normal to the life of most teachers that the thoughtless public rarely sense their significance. Such work, however, I say once more, is your prerogative. It is one of the things that set the professions apart in the estimation of worth-while people. It is aprivilege that you are bound to live up to, or be traitors to our high callings—shyster lawyers, quack doctors, pseudo-pedagogues. Yours will never be

> The organized charity, scrimped and iced
> In the name of a cautious, statistical Christ;

for you won't be giving money; you will be giving service, you will be giving yourself, and more than that not even a Carnegie or a Rockefeller can give.

But if a life like this is one of the claims made upon you by your very choice of a profession, what then may be some of its many compensations and rewards? I need discuss but one.

If you should ask me categorically just what special satisfaction seems to me more likely to come from a successful professional career than from other occupations, I presume I should answer thus. No other pursuits can so completely emancipate a man or woman from the assininities of life, the silly, discontenting consumption of time, the petty criteria of pride, the ambitions peculiar to social climbers, scaling their rotten ladder, the elect of Mammon, the only god they really know. For all such things, if you subscribe to the ideals of your profession, you will have neither time nor taste.

No, my friends, the pathetic snobs who would be but never are and never can be, who are ever cautious with whom they are seen to speak, who gauge the geniality of their smile and the temperature of their "good morning" by a quick appraisement of the social standing of the person they salute, the little folks whose use of a Ford car is apologetic, or of a Rolls Royce arrogant, who take the good fortune of their birth or of their education as a credit to themselves to be flaunted in the faces of those who have been less lucky, instead of as a blessing from God for which gratitude can be duly paid only through humility and service, all such *homunculi* take their place in the ranks of those who have kept the real people of the world amused since the world began.

Democritus was laughing at them nearly twenty-four hundred years ago. They kept Horace fat and merry in imperial Rome. They brought joy to Juvenal and to Lucian, who passed on their gaiety to us. The cheery laughter of Cervantes, Rabelais and Swift is still rippling through the ages.

You, too, will find half the fun and none of the pain of life in the observation of such as these; for you are privileged to live, if you will, among those with whom brains are an important matter, with whom public spirit and public service count for much, with whom your interest in art and music and literature are a chief concern, with whom the merely animalistic side of life takes its proper place of servant and not of master.

In our country, the truly great, whether in power, wealth or learning, are commonly simple, unaffected, friendly. Where you detect vanity, conceit, snobbery or overbearance, it is likely to be a camouflage for some quality or condition that is not an asset and has to be concealed. In any case, as I have said, it can only excite the secret risibility of a person who is intellectually and morally sound.

A professional career acquaints one with all the Vanity Fair of life. You will meet the cultured rich who consecrate time and wealth to art and learning as well as to church and charity; you will also find brains and the best of breeding among the very poor. But in both these classes and in every rating between, you will discover alas! not a few who have sadly degenerated from our Simian ancestry, living, breathing refutations of Nebraska's great scientist.

Through the accidents of life I myself have dined in my time with dukes and duchesses, but also—thank God!—of my own choice I have eaten bread and cheese in a city park. At a fashionable dinner, as you have often noted, you may sit above the salt and yet hear none of the Attic kind, while in the great outdoors some spell-binder may nail you to your seat until his tale is told. Homer would never have written the Odyssey, if he had associated only with nabobs and pundits. Both will often bore you to tears, unless you are an artful dodger or have the legs of an Achilles.

Perhaps I have stressed the thought enough that if you have any right at all in a profession, your happiness is going to depend but little upon the amount of money you make over and above a decent competence, and among your associates money cannot be their measuring-rod for you, nor yours for them.

There is, indeed, in this world of ours, no Utopia in which to maintain a permanent home, no Fortunate Isles for summer residence, no land of Cockaigne where we may flit for Sybaritic ease. But for such as you there is a nearby country, a country of the spirit in which we all may dwell, when we will and if we will. No man has a better passport for it than you who are embarking on a career in one of the great professions. The poets call that land Bohemia, not the land that Shakespeare located by the sea, much less the Latin Quarter of my student days when Paris was still unsmitten by the hell of war, but the country for which one bard has declared his preference in the following lines:

I'd rather live in Bohemia than in any other land;
For only there are the values true,
And the laurels gathered in all men's view.
The prizes of traffic and state are won
By shrewdness or force or by deeds undone;
But fame is sweeter without the feud,
And the wise of Bohemia are never shrewd.

Here pilgrims stream with a faith sublime
From every class and clime and time,
Aspiring only to be enrolled
With the names that are writ in the book of gold;

And each one bears in mind or hand
A palm of the dear Bohemian land.
The scholar first, with his book—a youth
Aflame with the glory of harvested truth;
A girl with a picture, a man with a play,
A boy with a wolf he has modelled in clay;
A smith with a marvellous hilt and sword,
A player, a king, a plowman, a lord—
And the player is king when the door is past,
The plowman is crowned, and the lord is last!

I'd rather fail in Bohemia than win in another land;
There are no titles inherited there,
No hoard or hope for the brainless heir;
No gilded dullard native born
To stare at his fellow with leaden scorn;
Bohemia has none but adopted sons;
Its limits where Fancy's bright stream runs;
Its honors, not garnered for thrift or trade,
But for beauty and truth men's souls have made.
For beauty and truth men's souls have made.

The man who penned those verses was not working at your age for any college degree but in a penal colony of Australia as a convict. If Boston of the Brahmans bestowed on him one of its most beautiful statuary groups, it was because he, the valued friend of the rich and great, never ceased to be the valued friend of the poor and lowly, irrespective of race, or creed, or color. He never came under the sway of any university's Genius or Juno, but he has spoken in the spirit of them all.

Pennsylvania sends you forth today into the fine fellowship of men of learning. If you go well-equipped to serve the ignorant and the suffering, the thanks are somewhat due to her.

As life at the longest never affords us adequate opportunity to show our gratitude to the mother that bore us, so it rarely suffices for the payment of our intellectual debt to the alma mater that taught us. Let us never forget that mother is a sacred word and that love and loyalty to mother is a sacred thing.

Although she has but ill expressed it through her mouthpiece, this old University expects from you and augurs for you a prosperous and a prospering career.

Youth fades; love droops,
The leaves of friendship fall;
A mother's secret hope outlives them all.

GRANTING OF HONORARY DEGREES

June 18, 1924

By President Josiah Harmar Penniman

WALTER EMRICH HERING

Master of Science

To your remarkable inventive genius, your ability and willingness to do faithfully the work that came to your hands, and your powers as an executive, is due the existence of the great business corporation of which you are the founder and head. Your interest in the development of medical science and your generous gifts to that work have been prompted by a love of humanity manifested in countless ways which cause hundreds whom you have aided to rise up and call you blessed. The University of Pennsylvania has invited you to be present today to receive public recognition of what you have done.

STANLEY RHOADS YARNALL

Master of Arts

As a token in public recognition of your valuable services, rendered during a distinguished career as a schoolmaster, during which you have built up a great school.

ANNE HOLLINGSWORTH WHARTON

Doctor of Letters

Throughout your life you have conferred honor upon the distinguished name you bear. One of the most notable women of this city and Commonwealth, you have made the history of your country the subject of lifelong study and to its literature have contributed many volumes of which the charm of their style has equaled the depth and accuracy of their scholarship. Better and wiser Americans become those who read what you with fervid patriotism have written.

AMBROSE SWASEY

Doctor of Science

Recognized throughout the world for your scientific attainments, particularly in the manufacture of instruments of precision—to your genius is due in large part the existence of the world's greatest telescopes, by means of which astronomers have been enabled to add vast stores to our knowledge of the heavenly bodies.

EDWARD RHODES STITT

Doctor of Science

Son of the Medical School of this University, eminent authority on tropical diseases—through a long and distinguished career as surgeon in the United States Navy, you have risen to the highest rank, that of Surgeon General. Respected for what you have contributed to the literature of your profession, beloved by your colleagues and associates for your personal qualities, you have been invited to be present today to receive from your own University public recognition.

JAMES TAGGART PRIESTLEY

Doctor of Science (*in absentia*)

Absent because of serious illness—son of this University, wide is your learning, broad are your sympathies, distinguished has been your career as a practitioner, numerous have been your contributions to the knowledge to the subject of your profession; but these facts taken together do not fully explain the place you occupy in the hearts of the thousands to whose bodies and to whose souls also have come your tender ministrations. You have throughout your life exemplified those traits of character that have caused you to be found ever on the side of what is uplifting, whether in the life of individuals or in the life of the community. Your city, your State, your profession, your University are proud of you, and to you we send today as our greeting these words of public recognition.

CYRUS HERMANN KOTSCHMAR CURTIS

Doctor of Laws

On this your birthday, because of those qualities and achievements which during a long and notable career have made you not only one of the world's greatest publishers, but also a student and a patron of fine arts, particularly of music, the University of Pennsylvania has invited you to be present to receive in this ceremonial public recognition of what you are and of what you have accomplished for the good of mankind.

DEGREES IN COURSE

First Session, June 18, 1924

Bachelor of Arts *(in Arts and Science)*

Richard Leo Ambrose
Theodore Franklin Bach
Thomas Carter Ballagh
Ellis R. Bellak
Abram Sulzberger Berg
George Emil Berner
Franklin Church Bing
Milton J. Bluestein
Paul William Bowman
Bernard Brown Brause
Ernest Allan Brav
Richard Thompson Buckley
*Paul Griffith Chancellor
*Clinton Manuel Cherry
John Lawson Chrisman
Emmet Frederick Ciccone
*Gordon Haddon Clark
*Norman Weaver Clemens
Robert H. C. Coe
Edwin F. Comstock
James Orval Courtney
Willard John Davies
David Justin Dean
(as of the Class of 1923)
Carlo De Marco, Jr.
Samuel Diamond
Stewart Cutting Eastwood
David Samson Eisenberg
Francis James Eustace, Jr.
David Hoffman Harry Felix
Kenneth Byard Fetter
Arthur Emil Fink
Irving James Flesch
George Heustis Fondé, Jr.
Sparta Fritz, Jr.
John Galbraith
*Samuel Dwight Gehman
Benjamin Greenstein
John Quintin Griffith
Francis Yarnall Halsey
Howard Russell Hansell
*Alfred Bennett Harbage
John Harper
Russell Albert Headley
Elliott Francis Herman
*Dwight Jordan Hotchkiss
George Earl James
William Charles Jason, Jr.
Andrew John Kegel
Paul Frederick Knaus
Charles William Kraft, Jr.
John Thomas Krall, Jr.
Joseph Harrison Kusner
Adolphus Henry Larzelere, Jr.
Jacob Levin
Lester Lichtenstein
Thomas D. McBride
Horace Fryer McConnell
John McWilliams McCullough
Marcus Magill
George Gordon Mahy, Jr.
Joseph Albert Matt
*Albert Bair Melnik
Edward Dana Mitchell, Jr.
Leon Thomas Moore
Thomas Stanley Mszanowski
George Milner Northrop
William Aloysius O'Connor
Robert Emil Olson
James Thomas Parsons
David Stewart Polk
James Hall Prothero, Jr.
Harold B. Ramsey
John Henry Reiners, Jr.
Philip Solomon Resnikov
John Minott Rivers
Milton Elias Robbins
Irvin Eugene Rosenberg
Daniel Grim Rothermel
Robert Victor Sager
Harry Alter Salzmann
Philip Franklin Schmehl
Frank Schoble, Jr.
Karl Ivins Schofield
Randolph Jefferson Scott
Everett Russell Shockley
Stephen Oscar Skakandy
Herman Skalla
George Wallace Sloan
Norman Rose Sloan
William Edwin Snyder
Michael James Stapleton
Sidney Statnekoo
Wilbur Newton Steltzer
Daniel Harding Strawn
Edmund Henry Szlapka
Francis Henry Taylor
D. Robert Tucci
*Paul Armstrong Turner
Edward Marvin Twitmyer
Richard Wagner Weiser
Harry Wexler
Morris Martin Wexler
*John Hollingsworth Wharton
Robert M. Williamson
Edward Gearhart Yeomans
Charles Joseph Zinn

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*With Honors

Bachelor of Science

Sydney Emlen Hutchinson
(*as of the Class of 1888*)

Bachelor of Science *(Pre-Medical)*

Walter Hotchkiss Burgin
Meyer Jonas Cohen
Harold L. Davis
Harold Kenneth Dwork
Henry Boyer Hoff
Arthur H. Ollswang
James Fox Schell

Bachelor of Science *(in Biology)*

Laura Estelle Hausheer

Bachelor of Arts *(College Courses for Teachers)*

Charlotte Berkman
Mary Elizabeth Booth
Margarita Bush Champion
Marie Stewart Chase
Eleanor Katherine Curlee
Laura Edna Davis
Helen Gilchrist Fudge
Clarice S. Hahn
Grace Hopkins
Laura M. Jones
Hazel Frances Lowenstein
Martha McAvoy
Laura Frances McDonough
Mary Josephine McIlvaine
Louise Ratledge
Bernice Cecelia Shmuckler
Leon Stern
Leona Wendkos
Ellen Smith Werner
Esther Wright

Civil Engineer

Samuel Wickes Barakat
Walter A. Hitchcock

Mechanical Engineer

George Esherick, Jr.
Paul Freedley.
Samuel Logan Kerr
Arthur Stanley Maris
Milton Caleb Stuart
Francis Gibbons Tatnall
Franklin B. Wright

Bachelor of Science in Chemistry

James Manderson Castle, Jr.
Melvin Rosenaur Hummel
John Mincer McIlvain
Edward Louis Marenzana
Louis Edwin Weisbecker

Bachelor of Science in Chemical Engineering

Nerses A. Almoian
William Sanier Berry
Thomas Francis Boyd
Charles Randolph Davis
Isaac Percival Davis
Neil Benjamin Donovan
Anthony Joseph Fischer
Andrew Carey Flinn
Henry George Foster
Sherman Leidich Gerhard
Willard Fairchild Houghton
Ashton Howarth
Karl Russell Knoblauch
Benjamin Carl Koch
Patrick Francis Lamb
Harry Bell McClure
Francis L. Macnamara
Herman Markowitz
Walter Morris
Russell Benjamin Sigafoos
George Anthony Smith
John Nagel Wurst

Bachelor of Science in Civil Engineering

Carlos Arnoldson y Serpa
John James Ashton
Horace Oswald Boyer
Richard Nicholas Collins
Alfredo E. Dominguez y Rivero
William John Doughterty
Ralph Joel Endriss
John Hugh Hulse
Gomer Edward Jones
William Kenneth Kinkead
David James Lamont
Albert Anthony Mahon
Raymond Kissell Martin
Frank Bertram Miller
*Harry Lloyd Nelson
*Alfred Frederick Samuel
George Bellevue Sheldon, Jr.
Louis Mann Steinberg
Charles Walter Test
Henry Boyer Walter
Nelson Paul Weller

Bachelor of Science in Mechanical Engineering

Howard Frew Boyd
Edward Rushmore Child
*Alfred William Doll
Samuel Elton Edge
Albert M. Freeman
Byron Wesley Gibson
Suleiman Yusuf Haddad
Schuyler V. Jenkins
Thomas Joseph Kean, Jr.
G. Russell King
Paul Newton Oberholtzer
Cyril Patrick O'Toole
Henry Warner Parker
Dale Purves
Clarence S. Rife
Edward A. Shumway, Jr.
Frank Bangs Sutherland
Herman Sylvester Thoenebe
Ralph Emerson Van Kleeck
Stephen Augustine Vivial
John Hubert Wilcox, Jr.

Bachelor of Science in Electrical Engineering

Charles Powell Amos
George Vaux Cresson
Tausias Irven Eldridge, Jr.
John Gerson
Justin J. Hanaw
Francis Louis Henderson
Ralph Addison Kinckiner
Ralph Anthony Krauss
Harry Langsam
Otto Paul Ortlieb
George Clarence Powers, Jr.
Sarkes Tarzian
George Alfred Terkelson
Charles Brinton Walton
Leslie Albertus Warren
Arthur Willink
Alexander Wolf
Louis de Zamacona

Bachelor of Science in Economics

Herman Percival Abramson
Kenneth Davis Acton
Charles White Adams
*Thomas Glendenning Aitken, Jr.
Evan Benner Alderfer
Jacob William Allen
Kenneth Halsey Allen
Wilkie Chapman Allen
Scott Alvin Allison
William Ellery Almy
Benjamin Samuel Altshuler
David Geddas Anderson
John Archibald Anderson
Sterling Ballou Archer
Raoul Arnoldson
Robert Herbert Arronson
Stuart Earl Ashby
Arthur Bachman, Jr.
Frank Rose Bailey
Willard Slocum Bain
Loyal Wilson Baker
John Hamilton Barnes
George Ramsey Barnett
Walter Gregory Baskerville

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*With Honors

Bachelor of Science in Economics (Continued)

Harold Burdett Bassette
Herbert Baylson
Robert Samuel Beal
Robert Kling Beck
William John Beckley
Edgar William Beckman
Albert Edward Bellingham
Elmer Haley Benson
Jose Berguido
Harry Benjamin Berk
*Edward Biberman
Hilton Francis Bicking
Edward George Biester
Arthur Nelson Bloch
Kirk Longfellow Bly
Paul Carl Bode
Eugene Cahill Bonniwell, Jr.
Raymond Winfield Bovaird
John Barlow Bowman
James Bernard Bradshaw
Herbert Braun
Hollis Penington Breeding
John Vincent Brew
Charles Davison Bridgman
Roy Bertram Brightbill
Alfred Carl Brombach
Ephraim Holway Brown
George Fiquette Brown, Jr.
Murray William Brownstein
James Walker Brydon
Reginald Masten Budd
Harold Almon Burch
Samuel Luke Hart Burk
Warren Paul Bush
George Aronson Butler
Theodore Hammond Button
Styles Stephen Butz
Milton Cades
Alfred Betts Caldwell
Howard William Calkins
Frank Eugene Callahan
David Burton Caminez
Frederick McKee Campbell
Theodore Campbell, Jr.
*Maurice Seymour Cantor
Isadore George Caplan
Charles Paden Carson
Arthur Glenmore Ceely
Philip Carlton Chalmers
David Sydney Chamberlain, 2nd
David Barske Cherashore
Hans Tse Chun
Robert Leslie Cizek
Edward M. Clissold
John Tomkins Close
Herman Cohan
Max Emanuel Cohen
Gerald Cullen Coleman
Edward Durbin Collins
Franklin Genth Connor
Martin Francis Connor, Jr.
Eugene Joseph Corrigan
Kenneth Munson Crane
Cyrus Sylvester Craver
Solomon Criss
Paul J. Cupp
Claude Calvin Curtis
James Nash Daly
Hyman Davidson
Uriah Pollack Davidson
Harold Duncan Davis
James Harry Deakin, Jr.
Frederick Wagner Deininger
John Dern, II
Howard Eugene De Turk
De Haven Develin
Charles Bennett Devine
Nathaniel Aloysius Devine, Jr.
Daniel Wellington Dietrich
Jesse Leroy Dobbins
Robert Donovan
Philip Albert Dorfman
Raymond Michael Dorsch
James Anthony Dougherty
Daniel Nicholas Dragonetti
James Joseph Drautman
Albert Alfred Drucker
Kenneth Hodges Dunbar
Edwin Davis Edelstein
Harry Volz Eichmann
Thomas Ernest Ellis
Everett Elting
Arthur Stoddard Emmons, Jr.
John Fancher Endicott
James Isaac Epstein, Jr.
Neil Craine Estabrook
William Harold Evans
Henry Edward Everding
Herbert Standley Eyre
Orrin Calvin Farnsworth
Benjamin Faucett
Gerald Malcolm Favor
John Walter Feeny
Earl Cahn Feinberg
Harry Feldstein
Eugene Curry Felt
*Jacob Felt
Milton Edmund Felt

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*With Honors

Bachelor of Science in Economics (Continued)

William Allen Fenimore
John Frederick Ferguson
William Graham Ferry
George Luther Fetherolf
Robert Stephen Field
Edward L. Fischer
Dean Joseph Fitz Gerald
Theodore E. Fitzgerald
Joseph Gratton Flanigan
Saverio Michael Flemma
Henry Christian Flynn
Donald William Forsyth
Frank Bowman Fowler
Alfred Frank
Carl Preston Frank
Edward Frank
Morris Harry Frank
*Harry Friedman
John Eugene Friedman
William Duncan Fuller
Maurice Albert Gallagher
Charles Ignatius Gallagher
Benjamin Harry Garb
Merritt Abram Gates
John Marshall Gersting
Charles Altime Gill
Arthur Theodore Gillespie
Frank Joseph Gillis
Joseph Francis Gillis, Jr.
Cecil Carlyle Gilman
Donald Fowler Gleckner
Judson Edward Godett
William Joseph Godziontkowski
William Davis Gohr
Lewis Label Goldblatt
Emil Francis Goldhaber
Mitchell Lawrence Goldman
Nathan Goldman
Virgil Arthur Good
Gordon Robertson Graves
Jacob Greenberg
David Anderson Grimes, Jr.
Herman Lawrence Gruehn
Walter Arthur Gude
Michael Gurbarg
Frank Warren Guthrie
Harry George Hadeler
Cyril Anthony Hafey
Robert Henry Hahn
Warner Franklin Haldeman
Thomas Edwin Halloran
Samuel Jerome Halpren
James Wayne Hamilton
John Leet Hamilton
Raymond Francis Hampson
Ralph Thomas Hand
Maurice Ticer Harrell
Mark Harris
Morton Loeb Harris
Nathaniel Kirby Harris
Edmund Kearsley Hartley
Howard Sheldon Hatfield
Gordon Bell Hattersley
Marvin Irvin Havre
Motozo Hayashi
Harold Michell Hecht
John Theophilus Heilig
Joseph Wolfe Heilman
Clarence Julius Heldman
Harry Halliwell Hellerman, Jr.
Richard Leonard Henn
Louis Frank Herman
Robert Pratt Hidden
Sol Morris Hirsch
Raymond Loomis Hoadley
Wilson Thomas Hobson, Jr.
Noah Payne Hoffman
Fred Peace Hofkin
Paul Elias Holden
Donald Everett Hollway
Galen Shindel Holshue
Louis Victor Roger Holst
Irving Kaufman Holzheimer
Amos Barr Hostetter, Jr.
Chi-Lien Hsu
Noel Richard Hueber
Gardner Andrew Huff
John Seaton Huff
Thomas Hicks Hughes
Almon Lewis Hutchinson
Alfonso F. Januszkiewicz
Chalerm Jayasuta
William Mendenhall Jefferis
David George Jones
Robert Thomas Jones
Herbert Harlan Kaiser
Joseph Long Kalbach
Harold Charles Kaplan
Alex Katz
Herbert Willard Keefer
Crume Philip Keifer
Charles Keller, Jr.
Henry Herman Keller
Ellsworth Elmer Kelly, Jr.
Harry Thornton Kelly
Samuel Kenin
Sayman Kerr
Francis Lawrence Kiep

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* With Honors

Bachelor of Science in Economics—(Continued)

Robert Joseph Kiep
Paul Fleming Kilburn
Richard Edwin King
George William Kittridge
Milton Charles Klein
Nelson Klein
Morris Klewans
Chester Alexander Kline
Wellington Conrad Klipple
Albert Edward Knecht
James Russell Knisely
Harold Koch
Howard Arthur Kosel
Maurice Herman Kosowsky
Edward Miklos Kovachy
Maurice Charles Kramer
Harold Freckelton Krantz
Adolph Edward Krebs
Louis Samuel Krotoshiner
Reuben Goehet Kugel
George Fitzgerald Kutz
Louis Lander, Jr.
John Oscar Larson, Jr.
Charles Lavinthal
Ernest Lawrence, Jr.
Leroy Goodwin Leap
Harry Camp Lee
J. Willard Leggett
William Francis Leopold, Jr.
Frank Daniel Levi
Louis Bernard Levine
Jules Leonard Levinstein
Burton Manuel Lieberman
Morris Liebman
Richard Stern Liebman
Carl Ellsworth Lindquist
Leon Lipman
Louis Lipschitz
Frank Moses Lissy
Raymond Aloysius Livingston
John George Lowe
George Henry Lush
George Romould Luxemburger
Maurice Luxenburg
Charles Jefferson Lyon
John Aloysius Martin McCarthy
William Joseph McCarthy
George Melvin McClintic
Frank Wells McCormack
John Davis McGirk
Joseph Gerald McKeone
Thomas P. McLoughlin, Jr.
Daniel Leo McMenamin
Daniel Francis McNamara
Walter Clingerman MacFarlane
Thomas Carswell Mackie
William August Mackie
Francis David Maclean
*Patrick Murphy Malin
Fredric Rand Mann
John William Martin, Jr.
George William Martyn, Jr.
George Ulysses Maryott
Joseph Simpson Mathis
Myron Dean Matthews
Horace Richard Maxwell
Howard Akerman Medholdt
Frederick Hilton Mershon
Lawrence Albert Meyers
Herman Christian Michels
Herbert Hunter Middleton
Grant Hornberger Miller
Isadore Miller
John Leslie Milne
John Edward Moeling
Irving Mitchell Mogulescu
Louis Adolf Montag
William Sheldon Moore
Samuel Franklin Morast
Alfred Lawrence Morse
Leon Morse
Milton I. Morse
John Keyser Mowrey
George Dutton Mullen, Jr.
Joseph Gabriel Murphy
Vincent Paul Murray
Thomas William Neely, Jr.
Warren Earl Neilson
Theodore Herman Nitsche
George Washington Nolte
John Clare Noonan
Vincent de Paul O'Brien
Clifford H. Orr
William John Orr, Jr.
Volney Richard Osha
Henry Watson Paddock
Albert Middleton Parry
Wilbur Catrup Pearce
Dragoslav Perishitch
Aubrey Henry Perowsky
James Whipple Perry
Richard Platt Peters
*Charles August Pfahler
Bernard George Phillips
James Harold Phillips
Theodore Anton Phillips
Fred Raymond Pierce
William Nead Pitts

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*With Honors

Bachelor of Science in Economics (Continued)

Jacob Bernard Polan
Sidney Pollack
Louis Jonas Poplow
Lewis Posner
Ralph Sterling Possinger
George William Power
Joseph Alan Prestele
Harry Price
John Walton Price
Samuel William Price
Carr Frederick Pross
Horace Willard Prunk
Frederick Emil Quinn
Joseph James Quinn
Caspar Selig Rabinowitz
George Bernard Raser, III
Donald King Ream, Jr.
Clifford Batchelder Reeves
Elwood Franklin Reeves, Jr.
Theodore Albert Rehm
Cyril Faust Reynolds
Joseph Stevens Riebel
Charles Willard Ripple
Donald Foote Roberts
Jay Bernard Rosensweig
Theodore Rosenthal
Oswald Herman Roth, Jr.
George Rowland, Jr.
Robert Palmer Rowley
Alexander Robert Rubin
Herman Sylvester Rubright
John Andrew Rudine
Samuel Rudner
John Levi Rush
Jerome Saalberg
Leicester Arthur Salomon
Raymond Saltzman
Samuel Joseph Savitz
Leigh Wilson Schadt
Edward John Schroeder
*Paul Herman Schultz
Theodore Charles Schultz
Walter John Schultz
Louis Meyer Schwarz
John Smith Scurfield
John Main Seaman
John Edward Harrington Sehl
Irvin Edwin Selman
William Bunn Severn, Jr.
Robert Huyett Shank
Nathan Coleman Shapiro
Samuel Manuel Sharkis
Willsey Soame Sherwin
Robert Lincoln Shire
Stanley Herman Shloss
Manuel Sidkoff
Harry David Silver
Benjamin Reuben Simons
Albert Wellesley Slater
Alexander Smith
Harold Powell Smith
Halsey Weir Smith
James Crofton Smith
William Albert Smith, Jr.
Henry Comegys Smyth
Chester Routzahn Snyder
Louis William Duling Snyder
John Fred Speer
David Edwin Squires
Fred Stashower
David Jay Stein
Morris Stein
Leon Steinberg
Leo Keith Steiner, Jr.
Eugene Stern
Louis Stern
William Donaldson Stewart, Jr.
Isaac Mehling Stickler
Herbert Richmond Stoddard
Phillip Edward Stoes
Raymond Frederick Stopper
Paul Landis Stover
Max Henry Straus
Harold Leon Strauss
Claude Meetch Stroup
Samuel Jacob Sugar
Herbert Olney Sugg
Michale H. Sura
William Taylor Swain, Jr.
G. Robert Montgomery Taylor
James Norman Taylor
John Arthur Taylor
Roger Harrison Taylor
*Howard Morris Teaf, Jr.
Henry John Testa
Herbert Threlkeld-Edwards, Jr.
Warren Luther Thomas
Alfred C. Thompson
John Taylor Thompson
Lindsay Yorks Thompson
Donald MacGregor Thomson
Curtis George Tripner
Louis Troelsch
Charles Robert Truitt
William Boyd Tucker
Harry William Tutchings
John Steensen Tuthill
Crofton Uniac

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*With Honors

Bachelor of Science in Economics (Continued)

Wilbur Harold Van Dine
Clarence Harding Van Dusen
Robert Alexander Wachsman
William John Wadsworth, Jr.
Edward Holsey Waller
Clarence Clifford Waples
Gordon Weber Ware
Adolph Hille Waterman, Jr.
John Woods Watt
Charles Diener Weaver
Orville Ethelbert Weber
Frank Wolf Weberman
A. Robert Weiler
Wiliam George Werner
Bernard Leonard Werthan
Oscar Learned Westgate
Abraham Samuel Wexelblatt
John Kenneth Wheeler
Rosslynn Knies Whetstone
Aloysius Michael Whitaker
Keith Kirkham White
Harry Wilbur Wilcox
Edgar S. Wilkoff
Malcolm Lockwood Williams
Frank Paul Wittmer
Frederick Oscar Woelfeld, Jr.
Milton Wolf
Mayer Wolk
Baxter Wood
Warren Moore Wright, Jr.
Donald Dean Wyatt
Charles Russell Wyke
Albert McConnell Wynn
Paul Irvin Young
John Crawford Youngman
Kai-Ip Yung
Joseph Bernard Zisser

Master of Architecture

Ernest R. Duckering
Herman William Gailing, Jr.
Alfred Easton Poor
Boris J. Riaboff
Roy Ruhnka

Bachelor of Architecture

Verle Lincoln Annis
Joseph Breuer
Alfred Mosher Butts
Hyman Cunin
Ernest R. Duckering
John Lane Evans
Junior Westland Everhard
Samuel Fink
Morton Klein Fleishman
Herman William Gailing, Jr.
Frank Nicholas Gaudelli
Hoyt Hall Griffith
Sydney Carter Jelinek
Charles James Jones, Jr.
Louis Isadore Kahn
Henry Enders Kerr
Wilfred Sargent Lewis
George Ignatius Lovatt, Jr.
Henry Edward Maddox, Jr.
Norman Nathaniel Rice
Boris J. Riaboff
Eldredge Snyder
Arthur A. Weidner
Harold Haydn Weisse

Bachelor of Music

Robert Aaron Gerson

Bachelor of Fine Arts

Margaret Frances Coleman
J. Logan Fitts, 2nd
J. Wilbert Snyder, Jr.

DEGREES IN COURSE

SECOND SESSION, JUNE 18, 1924

BACHELOR OF SCIENCE IN EDUCATION

E. Viola Alleman
Hazel D. Alexander
Mary Ellmaker Ambler
Elizabeth Adams Alt
Lillian Apotheker
Margaret Wallace Arnold
Eula Ethyl Baer
Gladys L. Baer
Dorothy Vaughan Ballagh
Madaline M. Barton
Agnes Margaret Bates
Florence Bauman
Harold Beker
Harriet Rita Bell
Catharine E. Bernhard
Ethel Bell Boardman
Martha Jane Brownfield
Helen Califano
Hester F. Campbell
Mary C. Carpenter
Evelyn Archibald Chamberlain
Rebecca Clavan
Dorothy Marie Clutch
Dorothy Gregg Craft
Margaret E. Crumrine
Florence Ann Crush
Abraham Joseph Cushman
Elmer Orwell Delancy
A. Blanche Derrickson
Edna Hartman DeTurck
Reba Elliott Donohue
Margaret E. Dowling
Alice A. Edmunds
Olive Jefferson Fairbanks
Gladys Frances Fairbrother
F. Ruth Ferguson
Eliza Price Finnesey
*Hildegarde J. Fitz-Maurice
Palmer Rich Flowers
Edith Alice Friend
Robert A. Gerson
Gertrude M. Gillespie
Sara Gilutin
Dorothy Frances Gochenour
Hazel Wallace Graves
Beatrice R. Green
Beatrice Marie Griffith
Alberta Rice Gutman
Thelma Maucher Harrison
*Ruth Elizabeth Hazlett
Dorothy E. Holloway
Helen Virginia Hood
Helen Barton Hubbard
Jean Beine Hewitt
Everett Warren Johnson
Norman Latshaw Jones
Eugenia R. Keating
Rebekah S. Keith
Gertrude Marie Kellinger
Mary C. Kerns
Mary Christian Kevin
Marian Gerhard Kresge
Frances LeFevre
Katharine M. Lettinger
Ethel Adelaide Letts
Frances Harriett Locuson
Constance E. Lowengrund
John Ernest McConnell
Anna Ralston McDannel
Ada H. MacDonald
Dorothy D. Malzer
Helen Matthews
Eleanor Claire Miller
Raymond R. Moyer
Miriam Müller
May A. Naylor
Nellie Anna Noone
Lester Weldon Nelson
Chester C. O'Neal
M. Ruth Opperman
Elsie Oros
Helen Constance Palmatary
Celia Pasternack
Emma Lillian Pennewill
Dorothea Maria Pfatteicher
Hazel Beatrice Pierce
Kathryn Eleanor Porter
Elizabeth Clement Potts
Jane Ann Pratt
Evelyn E. Ramonat
Virginia Redman
Edwin Stokes Renshaw
Beatrice Reynolds
Rose Ethel Rittenberg
Elma Corinne Roberts
Minnie Satinsky
Miriam Jackson Scott
Harold Ellison Schofield
Florence H. Schwartz
Emma N. Segal

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* With Honors

Bachelor of Science in Education (Continued)

Sadie Charlotte Segal
Miriam Josephine Sensenig
Doris Elizabeth Sexton
Frances Shapiro
Ralph Boyd Sharer
Dorothy Moss Shelmire
Meriam Lenore Spade
Lilian Alice Smythe
Jane Hunter Sneyd
Alice Parvin Sterner
Albert G. Stewart
Earl Stout
Gertrude Taft
Helen Ruth Teitelman
Mollie Adele Utkoff
Ruth May Vandegrift
Bess Weinrott
Claire Sylvia Weiss
Ronald Rutger Welch
Elizabeth I. Wenrich
Harold Custer Whiteside
*Gertrude Willis
Miriam Malvian Wirtschafter
Sara Mildred Wolfe
Ethel Wright
Theresa A. Young
Clara Zeidelman

BACHELOR OF FINE ARTS IN EDUCATION

Gladys Beatrice Sims

DOCTOR OF PHILOSOPHY

HORACE RICHARD BLANK, B.S. in Ch., University of Pennsylvania, 1919. Chemistry.
The Allotropy of Germanium Dioxide.

CLARENCE NEWELL CALLENDER, B.S. in Ec., A.M., University of Pennsylvania, 1909, 1917. Political Science.
The Selection of Jurors; A Comparative Study of the Methods of Selection and the Personnel of Juries in Philadelphia and Other Cities.

MICHAIL DORIZAS, A.B., A.M., Roberts College, 1907; University of Pennsylvania, 1915. Economics.
The Foreign Trade of Greece.

CHARLOTTE EASBY, A.B., A.M., University of Pennsylvania, 1921, 1922. Psychology.
Tests and Norms at the Six-year Level of Competency.

ARTHUR WESLEY FERGUSON, B.S., A.M., University of Pennsylvania, 1912; Lafayette College, 1920. Education.
The Professional Staff of State Departments of Education.

MAURICE HENRY FLEYSHER, B.S. in Ch., M.S., University of Pennsylvania, 1921, 1922. Chemistry.
The Activity Coefficients and Transference Numbers of Hydrochloric Acid in Alcoholic Solutions.

ALFRED IRVING HALLOWELL, B.S. in Ec., M.S., University of Pennsylvania, 1914, 1920. Anthropology.
Bear Ceremonialism in North America and Its Eurasiatic Parallels.

LUTHER ARMSTRONG HARR, B.S. in Ec., A.M., University of Pennsylvania, 1918, 1920. Economics.
Economic Factors Involved in the Formulation of the Maintenance Provisions of the Corporate Mortgage of Public Utilities Providing for the Issue of Bonds in Series.

ISAAC SAMUEL HARRELL, A.B., A.M., Trinity College, 1916, 1917. History.
The Loyalists of Virginia; An Economic Study of the Revolution.

KALMAN HEINDLHOFER, M.E., M. S., University of Zurich, 1906; Carnegie Institute of Technology, 1915. Physics.
Crystal Structure of Hard Steel.

CARL ALBERT HELMECKE, A.B., A.M., University of Michigan, 1912, 1913. Germanics.
Buckle's Influence on Strindberg.

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* With Honors

Doctor of Philosophy (Continued)

William Wallace Hewett, A.B., A.M., Swarthmore College, 1920; University of Pennsylvania, 1922. Economics.
The Definition of Income and Its Application in Federal Income Taxation.

Robert Bines Woodward Hutt, B.S., A.M., University of Pennsylvania, 1909, 1911. Psychology.
The Use of Color Cubes as a Test of Imageability.

Alice Margaret Jones, B.S. in Ed., A.M., University of Pennsylvania, 1918, 1922. Psychology.
An Analytical Study of a Group of Superior Children.

Zora Klain, A.B., A.M., Clark University, 1912; Pennsylvania State College, 1917. Education.
Quaker Contributions to Education in North Carolina.

Isadore Levine, A.B., A.M., University of Pittsburgh, 1921, 1922. Romanics.
The Language of the Glossary Sangallensis 912 and Its Relation to the Language of Other Glossaries.

John St. Mark Longaker, A.B., Lenoir College, 1919. English.
The Della Cruscans and William Gifford: The History of a Minor Movement in an Age of Literary Transition.

Millard Leslie Lowery, A.B., A.M., Dennison University, 1908, 1909; Columbia University, 1914. Education.
Certification of High School Teachers.

Seth Shepard McKay, A.B., A.M., University of Texas, 1912, 1919. History.
Making the Texas Constitution of 1876.

Edward Lawrence McKenna, A.B., A.M., Columbia University, 1913; University of Illinois, 1914. Economics.
State Insurance of Land Titles in the United States.

William Christie MacLeod, A.B., Swarthmore College, 1914. Sociology.
The Origin of the State: The Problem Reconsidered in View of the Data of Aboriginal North America.

Fletcher Summerfield Manson, A.B., A.M., New York University, 1915; University of Pennsylvania, 1921. Political Science.
Liberia and Her International Relations.

Charles William Meadowcroft, Jr., A.B., A.M., University of Pennsylvania, 1905, 1911. English.
Eden Phillpotts and English Peasant Drama.

Frederick Ward Ninde, A.B., M.D., A.M., University of Michigan, 1908, 1912; University of Pennsylvania, 1922. Psychology.
The Appplication of the Auditory Memory Span Test to Two Thousand Institutional Epileptics: A Study in Relative Associability.

Henry Sherman Oberly, A.B., A.M., Muhlenberg College, 1920; University of Pennsylvania, 1922. Psychology.
The Range for Visual Attention, Cognition and Apprehension.

Gladys Louise Palmer, A.B., Barnard College, 1917. Economics.
Labor Relations in the Lace and Lace Curtain Industries in the United States.

Edwin Frederic Pike, B.S. in Ch.E., M.S., University of Pennsylvania, 1920, 1921. Chemistry.
Studies of the Preparation of Germanium and Certain of Its Compounds.

Wilbur Clayton Plummer, A.B., A.M., Lebanon Valley College, 1910; University of Pennsylvania, 1922. History.
The Road Policy of Pennsylvania.

Harold William Schoenberger, A.B., A.M., Muhlenberg College, 1909; University of Pennsylvania, 1915. English.
American Adaptations of French Plays on the New York and Philadelphia Stages from 1790-1833.

Doctor of Philosophy (Continued)

Richard Harrison Shryock, B.S. in Ed., University of Pennsylvania, 1917. History.
The Union and Secession Movements in Georgia: 1846-1850.

Raymond James Sontag, B.S., A.M., University of Illinois, 1920, 1921. History.
Diplomatic Factors in the Estrangement of England and Germany.

Robert Ernest Spiller, A.B., A.M., University of Pennsylvania, 1917, 1920. English.
Impressions of England. The American Traveller During the First Half Century of Independence.

Leon Dupre Stratton, B.S. in Ch., M.S., University of Pennsylvania, 1909, 1917. Psychology.
A Factor in the Etiology of a Sub-Breathing Stammerer. Urinary Creatine and Creatinine as an Index of Metabolism.

Russell Davis Sturgis, B.S. in Ch., M.S., University of Delaware, 1919; University of Pennsylvania, 1921. Chemistry.
The Free Energy of Dilution of Sulphuric Acid in the Presence of Certain Sulphate Electrolytes.

Amos Elias Taylor, A.B., A.M., Pennsylvania College, 1915; University of Chicago, 1920. History.
The Development of the Economic Blockade: A New Factor in International Relations.

Alfred Hector Williams, B.S. in Ec., A.M., University of Pennsylvania, 1915, 1916. Economics.
A Study of the Adequacy of Existing Programs for the Training of Journeymen Molders in the Iron and Steel Foundries of Philadelphia.

MASTER OF ARTS

Augustus Henry Able, 3d, A.B., University of Pennsylvania, 1922. English.
Esther Hyde Alden, B.S., Columbia University, 1919. Sociology.
Paul Humiston Alling, A.B., Trinity College, 1920. Economics.
Mary Jenkins Anderson, A.B., Swarthmore College, 1914. English.
Forrest B. Ashby, B.S. in Ec., University of Pennsylvania, 1922. Economics.
Iredell Logan Aucott, A.B., University of Pennsylvania, 1917. Education.
Sara E. Beardslee, A.B., Albright College, 1898; Temple University, 1911. Education.
Irvin Bendiner, B.S. in Ed., University of Pennsylvania, 1921. Insurance.
Ernest M. Bickell, B.S., Gettysburg College, 1921. Education.
Benjamin E. Biswanger, A.B., Princeton University, 1914. Philosophy.
Jason Albert Blackburn, A.B., Swarthmore College, 1914. Education.
Theophilus Ernest Martin Boll, A.B., University of Pennsylvania, 1922. English.
Emma L. Bolzau, B.S. in Ed., University of Pennsylvania, 1922. History.
Earl M. Bowman, A.B., McPherson College, 1923. Philosophy.
Robert Louis Briggs, B.S., University of Pennsylvania, 1916. Education.
Joseph S. Butterweck, B.S., University of Pennsylvania, 1922. Education.
Archibald Campbell, A.B., University of Washington, 1923. Education.
Ruth Stephens Capers, A.B., Wheaton College, 1923. English.
Allen W. Cates, A.B., University of Arkansas, 1915. Education.
Allan Griffith Chester, A.B., University of Pennsylvania, 1922. English.
W. Walker Cheyney, B.S. in C.E., University of Pennsylvania, 1920. Education.
Harold James Christ, A.B., University of Pennsylvania, 1920. English.
Arthur S. Clark, B.S. in Ed., University of Pennsylvania, 1921. Psychology.
Robert William Coppedge, A.B., A.M., Kansas University, 1899, 1900. Education.
Carroll Roop Daugherty, A.B., Lebanon Valley College, 1921. Economics.
D. Sutherland Davidson, B.S. in Ec., University of Pennsylvania, 1923. Anthropology.
Alan O. Dech, A.B., Albright College, 1919. English.
Jennings B. Derr, Ph.B., Muhlenberg College, 1920. Education.
Werner Elster de Turck, A.B., A.M., Franklin and Marshall College, 1905; Potomac University, 1914. Education.

Master of Arts (Continued)

Norman Edward Diehl, B.S., Pennsylvania College, 1914. Psychology.
Willis Le Roy Dillman, A.B., Muhlenberg College, 1922. Sociology.
Harry Forrest Dorsey, A.B., Ohio Wesleyan College, 1914. History.
Benjamin Druckerman, B.S., Ohio State University, 1920. Botany.
Paul Dawson Eddy, A.B., University of Pennsylvania, 1921. History of Religions.
Felice Elkin, A.B., Radcliffe College, 1923. English.
Rebecca Patton Elliott, A.B., University of Pennsylvania, 1919. History.
Price Bowman Engle, B.S., Temple University, 1914. Education.
Kathryn Davis Ewart, B.S. in Ed., University of Pennsylvania, 1923. Psychology.
Arthur Huff Fauset, A.B., University of Pennsylvania, 1921. Anthropology.
Walter Dewey Ferguson, A.B., University of Pennsylvania, 1921. English.
Henry Rudolph Flanegan, B.S. in Ec., University of Pennsylvania, 1922. Economics.
Celia Frank, B.S., Temple University, 1918. History.
Harold C. Fry, A.B., Muhlenberg College, 1921. English.
Kuranoske Fujii, B.S., Ottawa University, 1921. Sociology.
Catharine J. Gage, B.S. in Ed., University of Pennsylvania, 1919. Psychology.
M. Elizabeth Garbarino, B.S. in Ed., University of Pennsylvania, 1923. Latin.
Leland James Gordon, B.S. in Ec., University of Pennsylvania, 1922. Political Science.
Morris Samuel Greth, A.B., Muhlenberg College, 1922. Education.
Dorothy Kern Hallowell, A.B., University of Pennsylvania, 1922. Psychology.
Horace Wilmer Hannah, A.B., University of Pennsylvania, 1922. Education.
Grace Ellen Harbold, B.S. in Ed., University of Pennsylvania, 1923. History.
Mae Elizabeth Harveson, B.S. in Ed., University of Pennsylvania, 1918. Education.
Frederick William Heins, A.B., Wittenberg College, 1920. Philosophy.
Richard M. Holme, B.S., Temple University, 1917. Political Science.
David S. Hsiung, B.S., Heidleberg University, 1923. Physics.
Ferdinand Myron Isserman, A.B., University of Cincinnati, 1919. Religions.
Arthur Edwin James, B.S., Pennsylvania State College, 1921. Education.
Elsie Isabella Jamieson, A.B., Wellesley College, 1910. Romanics.
Inez M. Johnson, B.S., University of Pennsylvania, February, 1924 (work completed 1923). Education.
Paul John Jones, A.B., University of Pennsylvania, 1920. Romanics.
Clyde McCarty Kahler, B.S. in Ec., University of Pennsylvania, 1922. Economics.
Charles G. Kalemkarian, A.B., Drake University, 1923. History.
I. Howell Kane, A.B., Dickinson College, 1921. History.
William Archibald Karraker, Ph.B., Ewing College, 1913. History of Religions.
Samuel Katz, B.S. in Ed., University of Pennsylvania, 1921. Education.
Ruth Elizabeth Kelly, A.B., Wellesley College, 1919. Economics.
Everett Stanley Kelson, B.S., Colby College, 1914. Education.
William L. Kershaw, B.S., University of Pennsylvania, 1912. Education.
Shih Hsuan King, B.S., University of Communications, 1922. Economics.
Franklin Brunell Krauss, A.B., University of Pennsylvania, 1922. Latin.
J. Ira Kreider, A.B., Franklin and Marshall College, 1920. Education.
John Robert Lechner, Ph.B., Denison University, 1921. History of Religions.
Jessie M. Lightfoot, B.S. in Ed., University of Pennsylvania, 1921. Psychology.
Mary Lyndell Lukens, A.B., Swarthmore College, 1918. Education.
Eugenie Margaret Lynch, A.B., Bryn Mawr College, 1918. Latin.
Robert C. McKenny, Ph.B., Brown University, 1921. History.
Imogene Elizabeth McNally, B.S. in Ed., University of Pennsylvania, 1923. Anthropology.
Thomas Taylor MacEwen, A.B., George Washington University, 1919. History of Religions.
Helen Dorothy Maxwell, Ph.B., University of Chicago, 1918. English.
Charlotte Elizabeth Metzger, A.B., Moravian College for Women, 1923. English.
William Henry Micheals, A.B., Dickinson College, 1907. Education.
Arthur Thomas Michler, A.B., Muhlenberg College, 1917. Education.

Master of Arts (Continued)

Percy Edwin Miller, B.S., Pennsylvania College, 1920. Education.
Grace Edna Moore, A.B., Swarthmore College, 1921. English.
Josephine Power Motheral, B.S. in Ed., University of Pennsylvania, 1917. Sociology.
Marie C. Mulholland, A.B., Temple University, 1918. History.
Josephine Aloysea Murphy, B.S. in Ed., University of Pennsylvania, 1922. Education.
Walter Loy Myers, A.B., Central Normal College, 1923. Education.
Charles Edward Neville, B.S. in Ed., University of Pennsylvania, 1917. Education.
David Newmark, B.S. in Ed., University of Pennsylvania, 1921. Education.
Irvin O. Noll, B.S. in E.E., Pennsylvania State College, 1909. Education.
Robert Martin Oberholser, Ph.B., Franklin and Marshall College, 1912. Education.
Philip Childs Pendleton, B.S., in Ec., University of Pennsylvania, 1922. Economics.
Martin L. Peters, B.S., Gettysburg College, 1913. Education.
William J. Phillips, A.B., University of Pennsylvania, 1920. English.
Ernest Yeakle Raetzer, B.S., Ursinus College, 1919. History.
Elsie Elizabeth Reynolds, A.B., Allegheny College, 1924. (Work completed, 1923.) English.
Edgar Thomas Robinson, A.B., Ursinus College, 1914. Education.
Frank R. Robinson, B.S. in Ed., Temple University, 1918. Education.
Anna Margaret Root, A.B., Randolph-Macon Woman's College, 1919. Sociology.
Elizabeth Rosengarten, B.S. in Ed., University of Pennsylvania, 1920. Education.
Annie Adele Rudolph, B.S. in Ed., University of Pennsylvania, 1918. Education.
Leonard J. Fox Ruttan, A.B., McMaster University, 1920. History of Religions.
Matthias A. Shaaber, A.B., University of Pennsylvania, 1918. English.
William Sharlip, B.S., University of Pennsylvania, 1916. Education.
Heman Summerell Shaw, A.B., Davidson College, 1908. History.
Rea Voke Shover, Ph.B., Ohio Northern University, 1914. Sociology.
Hildegarde Bussier Shumway, A.B., Wellesley College, 1920. Romanics.
Rubin M. Sindell, B.S., University of Pennsylvania, 1921. English.
John R. Skeen, B.S., Pennsylvania State College, 1921. Botany.
Harriet L. Smith, A.B., University of Michigan, 1922. English.
Lewis N. Snyder, A.B., Gettysburg College, 1916. Education.
George M. Sowers, A.B., Muhlenberg College, 1922. English.
Orville Tutwiler Spessard, A.B., Lebanon Valley College, 1921. Education.
J. Evaline Stellwagon, B.S., University of Pennsylvania, 1915. English.
Dorothy Lee Stevens, A.B., Wellesley College, 1922. English.
Winifred Bayard Stewart, A.B., University of Pennsylvania, 1922. Psychology.
Ethel G. Stiffler, A.B., Goucher College, 1922. Botany.
Russell Warren Stine, A.B., Muhlenberg College, 1922. English.
Mary E. Sullivan, A.B., University of Pennsylvania, 1921. Education.
Helen C. Taylor, A.B., Wilson College, 1921. History.
Joseph Hooker Thomas, Jr., B.S. in Ed., University of Pennsylvania, 1920. Education.
Emma Osborn Thompson, A.B., Bryn Mawr College, 1905. Education.
Joseph Marshall Thompson, A.B., Western Maryland College, 1910. Education.
Conrad T. Waldie, B.S., Temple University, 1916. Education.
Mary Kathryn Wallace, A.B., Ohio Wesleyan University, 1923. English.
Linneaus Arthur Walton, B.S., Ursinus College, 1920. Education.
Harry A. Warshaw, B.S. in Ed., University of Pennsylvania, 1921. Education.
Harry Derrickson West, A.B., Washington College, 1919. History of Religions.
Marie Elizabeth Wilhelmi, B.S. in Ed., University of Pennsylvania, 1922. Psychology.
Mildred Estelle Williard, A.B., Swarthmore College, 1920. English.
Roy Lutz Winters, A.B., Franklin and Marshall College, 1921. English.
George Clodder Wollman, B.S., University of Pennsylvania, 1920. Romanics.
Charles L. Wood, Jr., B.S. in Ed., Temple University, 1922. Psychology.
Frederick M. Worley, B.S. in Ec., University of Pennsylvania, 1921. Economics.
Zaidee Garr Wyatt, A.B., Bessie Tift College, 1909; George Washington University, 1910. Education.
Pae-Yeo Yuan, A.B., University of Peking, 1918. Education.

Master of Science

William Ralph Gawthrop, A.B., Swarthmore College, 1918. Chemistry.
J. Erskine Hawkins, A.B., University of Pennsylvania, 1919. Chemistry.
Laura Lamb, B.S. in Bi., University of Pennsylvania, 1910. Zoology.
Joseph William Lipp, B.S. in Ch., University of Pennsylvania, 1923. Chemistry.
Walter J. Seeley, B.S. in E.E., Polytechnic Institute of Brooklyn, 1917. Physics.
Nicol Hamilton Smith, B.S. in Ch., University of Pennsylvania, 1923. Chemistry.
Josephine Willis, A.B., University of Pennsylvania, 1923. Zoology.

Master of Business Administration

Tuh Yui Chang, A.B in Ec., St. John's University, 1922. Insurance.
Chen-Hsien Li, B.S., College of Commerce, University of Illinois, 1923. Commerce and Transportation.
Noble Flower McCredy, B.B.A., University of Washington, 1922. Industry.
Hiram A. Munn, B.S. in Ec., Iowa State College, 1922. Industry.
Sheng-Han Tao, B.S. in B.A., Ohio State University, 1923. Insurance.
Fayette S. Warner, C.E., Rensselaer Polytechnic Institute, 1921. Industry.

Doctor of Medicine

Tura Merrill Aldous
*Moore Lowry Allen
Katherine Sarah Andrews
Joseph Avin
August Robert Bauer
Everett Carlyle Bishop
*Andrew Blair, Jr.
Ralph Blumenfield
Marc Williams Bodine
Milton Carter Borman
*Albert Willard Bromer
Edward Ford Burt
*Edwin Weisman Burton
Archie Phelps Campbell
Leland Fields Carter
Samuel Clark Cates
Marion Eugene Clark
*Edward Steele Clayton, Jr.
Alexander Charles Cohen
*Charles Ralph Cornwall
James Alexander Cowan, Jr.
Edward Huntington Cowell
Hugh Lloyd Davison
Alexander Paul Deak
Yetta Ethel Deitch
Frank Ernest Dexheimer
Elmo Eddington
Raymen Graham Emery
Joseph Erdman
Alfred Abraham Euster
*Arthur First
Louis Fletcher
*Lawrence Francis Fluehr
Frederick Jay Fox
*Norman Albright Fox
Louis McCargo Fowler
Herbert Hewitt Fritz
*Wilfred Eyles Fry
*William James Gardner
Jacob Gershon-Cohen
Marvin Bernard Goldstein
Willard Coe Goley
Walter Lowrie Grow
Stephen Peter Gyland
Raymond Colby Hacker
Samuel Bernard Hadden
Reginald Wilmot Hammond
Walter Franklin Harriman
*George Alfred Haslam
Sydney James Hawley
Arthur Clarence Hehn
Ralph Howard Henry
Albert Herman
John Carnett Howell
Arnold Huff Jennings
*Louis Watres Jones
Robert DuVal Jones, Jr.
*Thaddeus Elmore Jones
George Jacob Kastlin
Eugene LeRoy Kellum
Isidore Goncer Klaus
Irwin Carl Krueger
James Everhart Landis
Arthur Marietta Largey
George Louis LeFevre, Jr.
*James Poland Lewis
Edward Theodore Litt
Bernice McCoy
Paul Grant McKelvey
Ora Richard McMurry
Benjamin Wilberne McNease
William McMillan McNaugher

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* With Honors

Doctor of Medicine (Continued)

Thomas Cochrane McVeagh
Donald Malven
Paul Todd Martin
Samuel Meyers
Samuel S. Miller
Alexander Allen Miner
*Thomas Brice Mitchell
*Herbert Monheimer
George Dillon Morris
Arthur Price Morton
*Leo Howard Mynes
*Rae Verona Nicholas
Russell Alleyne Noon
Paul Hepworth Parker
Fred Marion Patterson
Jacob David Pinson
Florence Knouff Polk
Ethel Martha Powis
*Perry Franklin Prather
Samuel Radbill
*Robert Jeffrey Reed, Jr.
Calvin Balthaser Rentschler
Edwin Balthaser Rentschler
Junior Edward Rich
Hugh Radle Robertson
Louis Carlyle Robinson
*George McCrea Robson
*Ellwood Warren Rodman
Edward Lee Russell
*Julia Russell
Louis Bernard Schatz
Carl Herbert Bryant Schutz
Benjamin Pincus Seltzer
Emil Max Senger
Richard Paul Shapiro
Paul Harold Shiffer
James Shelby Shipman
Waldo Harvey Shipton
Emanuel Mark Sickel
Silas Schwartz Smith
*Paul Otterbein Snoke
Edgar Wilson Spackman
Charles Stewart
*Merritt Henry Stiles
George Krumrine Swartz
Eldred Victor Thiehoff
Alma Alfonso Thorum
Owen Jones Toland
Edward John Tracey
Albert M. Vollmer
Charles Hodge Wallace, Jr.
*Charles Weiss
Bryan Clinton West
Gilbert William White
*Edward Morris Whitehead
Dorothea Farnham Whitney
Stuart Taylor Wier
Henry Lane Williams, Jr.
Frank Ray Yarborough

Doctor of Medical Science

Lorenzo Fremont Milliken, M.D., M.Sc. (Med.), Jefferson Medical College, 1905; University of Pennsylvania, 1923. Urology.
The Influence of the Nerves on Kidney Function in Relation to the Problem of Renal Sympathectomy.

Jane Sands, M.D., Woman's Medical College of Pennsylvania, 1918. Physiology.
Studies in Pulse Wave Velocity.

Master of Medical Science

Paul Zactung Koesun, M.D., Northwestern University, 1922. Internal Medicine.
Clinical Observations on Pulsus Alternans.

William Charles Dorasavage, M.D., Jefferson Medical College, 1918. Surgery.
The Treatment of Heat Burns.

William Clifford Gardner, M.D., B.S., George Washington University, 1919, 1920. Surgery.
Abdominal Drainage.

Walter Lowry Garnett, A.B., M.D., University of Texas, 1907, 1913. Surgery.
The Value of Pain as a Symptom in Lesions of the Female Breast.

James Wellington McColgan, M.D., University of Manitoba, 1919. Surgery.
Massive Collapse of the Lung Following Abdominal Operations.

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* With Honors

Master of Medical Science (Continued)

William Nimon Parkinson, M.D., Temple University, 1911. Surgery.
Spinal Anesthesia.

Henry Roberts Powers, A.B., M.D., University of Iowa, 1915; Rush Medical College, 1919. Surgery.
Osteitis Deformans.

Ernest Springer, M.D., Tufts College, 1921. Surgery.
New Growths Involving the Terminal Bile and Pancreatic Ducts.

Henry Anthony Springer, M.D., University of Cincinnati, 1916. Surgery.
A Brief Review of Prostatic Surgery; A New Method of Drainage in Suprapubic Prostatectomy.

Russell Garth Witman, M.D., Temple University, 1915. Surgery.
Clinical Observations in Acute Hemorrhagic Pancreatitis with Special Reference to Fat Necrosis.

Mitogoto Murayama, M.D., University of Cincinnati, 1912. Gynecology-Obstetrics.
The Bacterial Flora and Disinfection of the Vaginal Tract.

John Allen Dougherty, A.B., M.D., University of Louisiana, 1912; Vanderbilt University, 1916. Urology.
The Use of Caudal and Transacral Anesthesia in Urology.

Eugene Stanford Gilmer, M.D., Atlanta School of Medicine, 1909. Urology.
Ureterolithiasis.

Sidney J. Silbar, B.S., M.D., Marquette University, 1921, 1922. Urology.
Sexual Problems Confronting a Prison Urologist.

Ward Clair Alden, M.D., Chicago College of Medicine and Surgery, 1917. Otolaryngology.
Anatomical Preparations of the Temporal Bone.

John Kent Leasure, B.S., M.D., Indiana University, 1916, 1918. Otolaryngology.
The Thermic Changes during the Caloric Test of the Vestibular Apparatus.

Oliver Sheley Gilliland, M.D., University of Kansas, 1910. Otolaryngology.
Syphilis of the Ear, Nose and Throat.

Maximilian Adolph Schurter, M.D., Long Island College Hospital, 1912. Otolaryngology.
The Value of Roentgenology in the Diagnosis of Mastoid Disease in a Series of Fifty Consecutive Cases.

George Emery Shaffer, M.D., Jefferson Medical College, 1911. Otolaryngology.
The Remote Effects of Sinus Disease.

William Francis Whelan, M.D., Jefferson Medical College, 1914. Otolaryngology.
Tuberculosis of the Mouth and Pharynx Complicating Pulmonary Tuberculosis and Radium Treatment in such a Case.

BACHELOR OF LAWS

Franklin Guster Banks
Harry Bartman
Robert Kinsloe Bell
Frederick Cowan Bolard
Daniel Joseph Boyle
William Brodsky
Benjamin Nields Brown
Hazel Hemphill Brown
Edward Vincent Buckley
Thaddeus Martin Daly, Jr.
Paul Deeter Edelman
William Cramp Ferguson, Jr.
*Gerald Francis Flood, *cum laude*
Edward Harrison Pugh Fronefield
Charles White Gamble
Samuel David Goodis
Abraham Samuel Greenwood
Edmund Guido Hauff
Alfred Karl Hettinger
Thomas McElree Johnston
Sidney Kaplan
Jacob Jerome Katz
Harry Kaufman
Richard Henry Klein
Gamble Latrobe, Jr.
Artemas Cameron Leslie

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* With Honors

Bachelor of Laws (Continued)

John Hargraves Lucas
Harry Raymond Matten
David Farrow Maxwell
Paul Vansant Neall
Robert Nelson Carnelious Nix
Ida Oranovich
Dale Burton Painter
James Patterson
Edwin Paul Patton
Harold LeRoy Paul
Herbert Aloysius Pinto
Philip Shrogg Polis
George Dollinger Preston
Lester Grant Rarig
I. Louis Rubin
Walton Orvyl Schalick
Maurice Benjamin Schreibman
Elmer Andrew Schroeder
Charles Daniel Smeltzer
Sigmund H. Steinberg
Samuel Biffert Stilwell
David Stock
Charles Impey Thompson
I. Nathaniel Treblow
Claude Brower Wagoner
*Philip Wallis, *cum laude*
Wendell Edgar Warner
Aloysius Michael Whitaker
Paul David Zentmyer

DOCTOR OF DENTAL SURGERY

Joaquin Antonio Abudo Servera
Aron Leon Ackerman
Charles Salisbury Ackley
Warren Roosevelt Adams
Alfred Frederick Adelizzi
Nathan Alderstein
Farid Ibrahim Baddourah
Thomas Rose Bailey
Leo Maurice Baxter
Harry Martin Bender
*Harry Clyde Best
William Coltus Billingham
Karl John Bowers
Ralph Jacob Bowman
*Edward Joseph Bowser
*Gayza Victor Boyko
Murray Briedt
Howard Ellis Brown
Martin Daniel Bruner
Eduard Siegfried Buchholz
Frank William Butler
Seth Rudolph Carlson
Allan Erwin Cary
Herman Heffner Cawood
John Arthur Chattin
*Richard Alexander Clinchy, Jr.
Samuel Leon Cohen
Edward Ralph Coleman
Thomas Joseph Conville
Thomas James Cook
Bernard Howard Cowan
Herbert James Coyle
William Vincent Cullen
Anthony Joseph D'Angelo
Marcena Pearce Danque
Louis Lambert Danzig
Emanuel Davidson
Charles Borromeo Dean
*Jorge Lorenzo Delgado
Herman Joseph Diekman, Jr.
Lubomir Djokovitch
Theodore Arnold Doremus
Victor George Dostrow
Talbot Hilary Dressin-LeBlanc
Clarence Alvin Dunn
Leonard James Eaton
Milon Philip Eaton
*Albert Handler Elkins
Nathan Epstein
Carlton Livingston Faust
Lawrence Manley Fitch
Joseph Burke Flanagan
Edwin Charles Foppert, Jr.
John Claude Foster
Robert Ernest Fraser
*Horace White Gage, Jr.
Thomas James Gallagher
Louis Garber
Nathan Gelman
*Frank James Gianforti
Edward Rudolph Gilda
Max David Gillis
William Howard Glickfeld
*Bertram Francis Goldstein
John Cronin Granger
*Albert Matthias Grant
Clark Woodburn Gros
Ralph Clair Hager
William Joseph Hall, Jr.
Conrad Frederick Hellwege
John William Henefer
Joseph Wallace Hennessy

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*With honors

Doctor of Dental Surgery (Continued)

James Augustus Henry, Jr.
Melvin Herrmann
Scott Hindman Hockenberry
Wilford Beverly Hodge
Lowell Bowers Hodges
Nicholas Hampton Holman, Jr.
*James Blair Horton
Robert Pulsifer Biddle Hughes
Russell August Hulse
Earl Gunton Hungerford
Masatsugu Ichinoi
Clarence Oscar Johnson
Harold Gunton Jones
John Paul Jones
*Edwin Kanter
*John Ambrose Marlin Keen
Wayde David Kelly
*Shakir Khaleel
Alvin Edward Kirschbaum
Samuel Wesley Kiviat
Waldo Sawyer Knoll
Jerome Louis Kotok
Maxwell Adam Kotzker
*Charles Haim Kremer
George Otto Kretz
Archie Marsh Krieger
Raymond Allen Krome
Edward Byers Kuhns
*Frederick Arthur Kuhns
Monroe Byron LaBarre
Maurice Lappen
Frank Lawrence
*Nelson Alfred Lessig
Louis Levin
Harold Flint Lewis
Russell Wesley Locher
Harry Ralph Loomar
Francis Cornelius Loughery
Nathan Boyd Lowe
Christoffel Jacobus Visser Lubbe
Earl George Ludlam
Harry Joseph Lyons
*Norman Dodge McKean
Ellsworth Miles McMullen
Gibson Porter MacIndoe
Delbert Raymond Major
Russell Coe Manchester
Carl Spencer Martin
Robert Earl Martin
*Orville Gladstone Meland
Earl Edison Miller
James Malcolm Miller
*James Staunton Miller
Jonathan Kriesser Miller
Robert Edward Miller
Darinka Mladenovitch
James George Morgan
*Benjamin Nathan Moses
*Isidore Nathaniel Moskowitz
Frank Donald Moynihan
John Baird Mullen
Samuel Stanley Multer
George Allison Murray
John Murren
Paul Kenneth Musselman
Stanley Robert Mutch
Yoshiro Nakagawa
Arthur Julius Neidinger
Samuel Eugene Neikrug
Harry Neiman
Gerald Newton
Maxwell Jay Nussenfeld
Timothy Francis O'Dea
Norman Franklin Ottley
George Scott Page
Russel Clark Paris, Jr.
James Protus Pigott
Dolores Margaret Pla
George William Porter
Morris Isadore Pressman
Joseph Homer Prince
Andrew Clayton Pringle
Henry Thomas Quinn
Lester Raw
Harry Clinton Reichard
James Leo Reilly
Maurice Reiter
Raymond Groves Richter
William Kenneth Rimmer
Edwin Rissberger
John Barnett Roberts
Henry Davis Rohrer
Harry Disbrow Rogers
Alfred Herbert Rosenberg
David Rosenblum
*Ely Rosenthal
*Abraham William Rosow
Rudolph Roth
Warren Louis Roulo
David Randle Rowe
*Levon Missak Saghirian
Mohamed Hassan Sajjad
Junji Sakai
Abe Lincoln Sanow
Joseph John Schneider
Walter Louis Schneider
Henry Schomer
*William Paul Schout
Albert Maurice Schwartz
Stanley Ebenezer Sennitt

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*With honors

Doctor of Dental Surgery (Continued)

Martin Ray Shipman
Bernard Harry Silver
Freeman Holmes Smith, Jr.
Eugene Ralph Snyder
Abraham Snyderman
James Francis Somers
*Francis Clifford James Spike
Joseph Solomon Stamm
George Harold Stark
*Frank Stein
Cyril Frederick Strife
Leo Milton Stull
Tamefusa Suda
Gerald Vincent Sullivan
Edward Arthur Sussman
Frank Virgil Sutland
Tollie John Tacelosky
Shinjiro Takahashi
Juzo Takamatsu
Donald Reed Thompson
Elbert Fielder Thompson
James Carpenter Thompson, Jr.
*Samuel Trachtman
Frank Emmanuel Trusheim
Burton Adolph Van Graafeiland
Ralph Spencer Voorhees, Jr.
*Edward Michael Walsh
Harvey Beauford Walter
Warren Wesley Walton
Hugh Russel Warner
Isadore Irving Weisberg
Russell James West
Eugene Reed Westcott
Edgar Rudolph Widmann
Lindsay Gilmore Wilson
*Abraham Zaveloff
William Detwiler Ziegler
Charles Harry Zimmerman
Nathan Zion

DOCTOR OF VETERINARY MEDICINE

Arthur Louis Brueckner
Thomas Jefferson Gasser
James Seely Hogg
James Hendricks Spence
Fred Dickson Wood

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*With honors

Commissions, Certificates, Fellowships, Prizes, Honors, etc.

June 18, 1924

COMMISSIONS AND CERTIFICATES

Department of Military Science and Tactics

The following students in the R. O. T. C. who have completed the course of instruction in Military Science and Tactics, have been awarded commissions:

Second Lieutenants of Infantry, Officers' Reserve Corps, United States Army

Herbert Baylson
Ernest Mathias Bickell
John Macfarland Douglas
Frank Bowman Fowler
Henry Thomas Gruber
Carl Ellsworth Lindquist
William Ellis Oler
John Barclay Rodgers
Robert Huyett Shank
Arthur Willink

First Lieutenants, Dental Reserve Corps, United States Army

Joaquin Antonio Abudo
Thomas Rose Bailey
Edward Joseph Bowser
Seth Rudolph Carlson
Bernard Howard Cowan
Charles Borromeo Dean
Carlton Livingston Faust
Nathan Gelman
Robert P. Biddle Hughes
John Ambrose Marlin Keen
Louis Levin
Russell Wesley Locher
Nathan Boyd Lowe
Delbert Raymond Major
Norman Dodge McKean
Russel Clark Paris, Jr.
George William Porter
Alfred Herbert Rosenberg
Walter Louis Schneider
Bernard Harry Silver
Ralph Spencer Voorhees
William Detwiler Ziegler

The following students, graduates of the Infantry, R. O. T. C. Unit, this University, will receive commissions upon completion of Advanced Camp:

Second Lieutenants of Infantry, Officers' Reserve Corps, United States Army

William Gordon Ackerman
Omar Klauder Boyd
William Harold Evans
Justin Joseph Hanaw
Milton Elias Robbins
James Wilbert Snyder, Jr.

First Lieutenants, Dental Reserve Corps, United States Army

Karl John Bowers
Abraham Zaveloff

The following students, graduates of the Infantry R. O. T. C. Unit, this University, are awarded certificates, their commissions as Second Lieutenants of Infantry, Officers' Reserve Corps, being withheld until they become of age:

George Anthony Smith
Clifford Lee Salinger

CERTIFICATES

In Architecture

Edwin Ferdinand Anderson
Douglas Marsh Blum
Joseph Francis Booton
T. Eric Cooper
Frederick Wm. Clarke
Carl J. Ebert
Guy Edwards Hecklinger
Irvin Thornton Randolph
George P. Turner
Hewitt Curtis Wood

In Music

Sarah Hudson White
Sister Mary Agnese
Sister Mary Alphonsina
Sister Mary Angeline
Sister Mary Beata
Sister M. Scholastica Chainey
Sister Marie Estelle
Sister Michael Joseph
Sister Angelus Maria
Margarita Parkinson
Elsie M. Smith
Mabel Janvier Yerkes

In Oral Hygiene

Marguerite Lauretta Brossman
Ethel Cecilia Brown
Ruth Griffin Cory
Miriam Kathryn Coxe
Ruth Virginia Cutler
Grace Isabelle Davis
Helen Josephine Davison
Margaret Ione Detwiler
Mabel Matilda Emerich
Irene Vivian Feldman
Letitia Naomi Freeman
Florette Kaplan Friedenberg
Suezanne Frances Hamell
Margaret Stella Holsing
Emily Irene Knabb
Helen Beatrice MacDonald
Gertrude Virginia Middower
Florence Ann Miller
Lena Miller
Mary Agnes Morrison
Eleanor Wayne Orton
Marcella Katharine Pelstring
Caroline Thomas Rauch
Mada Christine Reilly
Hazel Alberta Ritts
Lucile Ruhe
Elizabeth Russell
Irma Rosa Schwatt
Sara Catharine Shaffer
Annetta Margaret Sipe
Elizabeth Alice Smith
Margaret Jean Snyder
Edith Ruth Sweet
Caroline Rose Volinski
Miriam Katharine Willis

In Accounts and Finance

Evening School

Meyer Mason Allen
Murray Leonard Alterman
Leonard F. Ashford
George J. Banse
John E. Bassill
Russell H. Beale
Ernest Franklin Bennett
Frederick H. Bickert
Morris Morton Bleshman
Robert J. Bonner
James S. Bontemps
William M. Bradford
Maxwell S. Bratman
Isadore O. Brick
Edith H. Bucher
Edward P. Cahill
Harry Y. Clawson
Thomas Edward Coe, Jr.
David Cohen
Herman Cohen
Harlan Conly
Nathan Raymond Costilo
Howard D. Crawford
Walter Ernest Cross
W. Clifford Culp
William J. David
Willard S. Detweiler
Ernest F. Doherty
James T. Dooley
Morris Dubison
William Raymond Duffell
Charles Johan Edlund, Jr.
Albert E. Edmunds
Mariano Alba Eraña
J. Wallace Fager
James Ferguson

In Accounts and Finance (Continued)

Truman B. Fidler
Salvator J. Fileccia
Frederick William Floyd, Jr.
John B. Flynn
John Frank Flynn
William Naylor Force
Edward Joseph Forler
Samuel B. Forman
August Frank
David J. Friedman
Herbert Brill Fromm
Joseph M. Gallison
Esther Hilda Gealt
Herman O. Gessner
Harold Moyer Gilmore
Roy Sautter Glenn
Theodore M. Gloeckner
Charles A. Grech
Robert Roth Grubb
Albert M. Gumerman
Albert R. Hahn
Emily Hansen
James H. Hardiman
Charles Harold Harrison
William Joseph Haskins
William Hermann
Emily Higgins Heird
Charles Frederick Hoell
William S. Y. Howard
Charles H. Hutson
William F. Jeandell
Herbert A. Jerome
Joseph Kalinsky
Milton J. Kamens
Kathryn Marie Kick
William Noble Kinnard
Louis J. Klofach
Herbert B. Kratz
J. Frederic Landes
Nathan T. Lazar
William Frederick Learson
Marcus Lieberman
Joseph G. Louderback, Jr.
Harry Isenberg McCarthy
Hugh Kenny McCloy
Howard Wilson McClurken
John Aloysius McCormick
Thomas F. McDermott
John Joseph McFarland
Norman James MacMichael
Edgar Carl Mellander
John Hayden Merhar
Frederick Pitman Meves
George Wesley Miller
Frank John Mitchell
C. Alston L. Moore
Emma Brooke Mosley
William Murphy, Jr.
William James Nellis
George Thomas Olsson
Thomas J. O'Neill
Thomas Michael O'Neill
Elmer Herbert Orttung
W. Townsend Pancoast
Martin Henderson Parkinson, Jr.
Robert Charles Perina
Raymond A. Phillips
William Joseph Quigley, Jr.
Peter L. Rack
R. Stewart Rawlings
Thomas Joseph Reilly
Paul A. Riedel
William Horner Roberts
Eugene J. Rodgers
Bartholomew S. Romano
Roy J. Rose
Maurice Rosen
Lena S. Scheindlinger
Samuel Schnitsky
John C. Schramm, Jr.
Oscar O. Schreiber
Harry Schwartz
Samuel Stover Sheller
Charles Silovitz
Irving A. Silver
Leonard Wallace Smith
Thomas W. Smith, Jr.
Sidney Sonneberg
Leon Earle Sperling
W. Lewis Spielberger
John Rusling Stanger
Winfield Scott Steinman
Charles Henry Sulzberger
Joseph J. Taylor
Gavin Watson Thomson
Harry Thudium
Harry J. Tiedeck
John Toram, Jr.
Frank Trachtenberg
Wallace Triplett
Frank L. Troxell
H. Munro Tweed
Florence Joan Underkofler
Edward S. Wagner
Joseph Wenceslaus Walsh
John Nelson Walton
William Donald Warner
Harry Moyer Welsh
Herbert Samuel Williams
W. H. Williams
Ralph David Withington
Charles Russell Witmer
Morris Wolkof
Robert Benson Wood
G. Raymond Ziegler

In Accounts and Finance

Extension School, Harrisburg

Arthur Paul Burns
Richard A. Coleman
Myron Hoke Cover
Harry J. Fornwald
Geo. C. Garber
Edward William Gough
F. Lester Hale
George Franklin Keys
Webster S. Kohlhaas
J. Edward Reiter
Charles S. Rowe
Raymond C. Smith
Robert J. Sourbier
Lester J. Sutton
Guy M. Williams

In Accounts and Finance

Extension School, Reading

John L. Achey
Frank C. Boas
John Patrick Breen
Wallace George Brumbach
Katharine I. Dwight
Emily Myers Francis
Stanley S. Gairloch
Clarence H. Griesemer
Charles K. Hardy
Raymond B. Hilbert
John L. Hoch
Lyman H. Houck
Paul F. Knoll
Charles J. Lindemuth
J. Ira Long
Frank Russell Miles
Earl D. Neidig
Alvin F. Neuroth
Robert W. Prutzman
H. Gordon Rainey
Clara A. Schaefer
Walter Luke Sonen
Arthur K. Stern
Russell F. Wagner

In Accounts and Finance

Extension School, Wilkes-Barre

Edward A. Bedner
Charles F. Corbett
Alfred L. Ellowitch
John R. Goode
Cyril Hammonds
Lawrence Decker Henshall
William R. Ichter
Zita E. McGlynn
James J. Malloy
Alexander Oshirak
Thomas E. Owens
Fred Adolph Plieskatt
C. Edgar Siegel
Leonard J. Walsh
Sterling LeRoy Wandell
Victor J. Wilkes

In Accounts and Finance

Extension School, Scranton

Samuel Block
Kenneth Franklin Bray
Henry Burke
Joseph L. Carroll
Matthew M. Connolly
Joseph A. Cullen
Francis A. Evans
John Lamb Fahey
Samuel A. Finkle
Robert John Gothier
John Pendered Green
John J. Grimes
William Richard Kern
G. Fred Hower
Cecilia Irene Lowry
Torry James Luce
James Gregory McDonough
M. Thomas Mills
Helen Modjeska O'Malia
Haydn John Pritchard
Helen G. Ransom
Edgar A. Reill
John Joseph Rydzik
Nathan Burleigh Salsbery
Martha Marie Scheidell
Charles B. Smith
Howard Freeman Thomas
Willard Joseph Wrigley

IN THE GRADUATE SCHOOL OF MEDICINE

For Graduate Work in Internal Medicine—October 17, 1923, to June 14, 1924

Howard Wilcox Davis, Binghamton, New York.
William Hammersley Hazelton, Burlington, Colorado.
Algot Siegfried Lineer, Minneapolis, Minnesota.
William Edgar McCurry, Hartwell, Georgia.
Benjamin Smith Parks, Spencer, West Virginia.
Enos Aitken Potts, Chicago, Illinois.
Francis Thomas Read, Merna, Nebraska.
Charles Ferd Ulrich, Valentine, Nebraska.
Clarence Adelbert Whitcomb, Malden, Massachusetts.

For Graduate Work in Pediatrics—October 17, 1923, to June 14, 1924

Joseph Edward Day, Garland, Utah.
Henry Embra McMurray, Pierce, Florida.

For Graduate Work in Neuropsychiatry—October 17, 1923, to June 14, 1924

Thomas McSwiney Barrett, Pittsburgh, Pennsylvania.

For Graduate Work in Dermatology-Syphilology—October 17, 1923, to June 14, 1924

Robert Lee Kelly, Elic, Kentucky.

For Graduate Work in Surgery—October 17, 1923, to June 14, 1924

William Adam Burke, Minersville, Pennsylvania.
John Joseph Carden, Honolulu, H. T.
Hugh Clark, Winchester, Virginia.
Richard Boyd Davis, Warrenton, North Carolina.
Robert Francis Farrell, Omaha, Nebraska.
Robert Kent Finley, Xenia, Ohio.
Vincenzo Giacalone, Vineland, New Jersey.
Lee Verne Hill, Randall, Kansas.
Salvatore Megna, Milwaukee, Wisconsin.
Robert Colliver Murdy, Aberdeen, South Dakota.
James Harold Nicholson, Madison, Georgia.
Joseph Aloysius Stoeckinger, Paris, Kentucky.
Jeremiah Vincent Sullivan, Fall River, Massachusetts.
Roscoe William Teahan, Mechanicville, New York.

For Graduate Work in Surgery—January 3, 1923, to June 14, 1924

Thomas Wolden Phillips, Philadelphia, Pennsylvania.

For Graduate Work in Gynecology-Obstetrics—October 17, 1923, to June 14, 1924

George W. Morgan, Yerkes, Kentucky.
Lyman Harold Robison, Salt Lake City, Utah.
Frayvol Wesley Urton, Allock, Kentucky.

For Graduate Work in Urology—October 17, 1923, to June 14, 1924

Charles Herbert Doe, Tacoma, Washington.
John Lewis Mahoney, Boston, Massachusetts.
Alvin Lee Mills, Jacksonville, Florida.
Clay Eli Mullinax, Hastings, Nebraska.
Nolie Mumey, Denver, Colorado.
Sverre Quisling, Madison, Wisconsin.
William Howard Schmitz, Omaha, Nebraska.

In the Graduate School of Medicine (Continued)

For Graduate Work in Otolaryngology—October 17, 1923, to June 14, 1924

Gouverneur Hammeken Boyer, Pottsville, Pennsylvania.
Leman Dow Cruice, Spencer, West Virginia.
Francis Theodore Fitch, Chicago, Illinois.
Roland Frederick Fleck, Westfield, New York.
Fred Eugene Hamlin, Staunton, Virginia.
George Llewellyn Hoffman, Norristown, Pennsylvania.
J. Edward James, Bethlehem, Pennsylvania.
Arthur McArthur, Flint, Michigan.
Perley James Mundie, Calais, Maine.
Charles Everett Nicholson, West Pittston, Pennsylvania.
Belvin Pritchett, San Marcos, Texas.
Monroe David Reese, Philadelphia, Pennsylvania.
Percy A. Scollick, Osawatomie, Kansas.
Henry Arthur Stone, Philadelphia, Pennsylvania.
George Edward Teehan, Providence, Rhode Island.
Allen Vincent Walker, Rochester, New York.
Ira Bitzer Winger, Ephrata, Pennsylvania.

FELLOWSHIPS AND SCHOLARSHIPS AWARDED

(For the Year 1924-25)

On the George Leib Harrison Foundation

FELLOWSHIPS FOR RESEARCH

In Physics:

Enos Eby Witmer, A.B., Ph.D., Franklin and Marshall College, 1920; University of Pennsylvania, 1923.

In Semitics:

Ephraim Avidor Speiser, A.M., Ph.D., University of Pennsylvania, 1923, 1924. Higher Government Gymnasium, Lemberg, Galicia.

FELLOWSHIPS

In Chemistry:

Frank Evans Swindells, B.S. in Chem.; M.S., Carnegie Institute of Technology, 1921; University of Pennsylvania, 1923.

In Economics:

Carroll Roop Daugherty, A.B., A.M., Lebanon Valley College, 1921; University of Pennsylvania, 1924.

In Education:

Quincy Alvin W. Rohrbach, A.B., A.M., Franklin and Marshall College, 1922; University of Pennsylvania, February, 1924.

In English:

Robert Weller Thomas, A.B., Allegheny College, 1912.

In History:

James Edgar Swain, A.B., A.M., Indiana University, 1921, 1922.

In Mathematics:

Donald Alexander Flanders, A.B., Haverford College, 1920.

In Medical Sciences:

Stanley Elphinstone Kerr, B.S. in Ch., University of Pennsylvania, 1917.

In Political Science:

Jan Maria Novotny, Juris Doctor, Charles University of Prague, 1921.

In Romanics:

Harry Austin Deferrari, A.B., A.M., Dartmouth College, 1919; Harvard University, 1920.

In Sociology:

Clifford Kirkpatrick, A.B., A.M., Clark University, 1920, 1922.

SCHOLARSHIPS

In Chemistry:

Kenneth Braddock-Rogers, B.S., Haverford College, 1922.

In English:

Walter Marion Crittenden, A.B., Baylor University, 1923.
John Valente, B.S., A.M., University of Pennsylvania, 1911; Columbia University.

In History:

Andrew Wallace Crandall, A.B., Central College, 1917.

In Philosophy:

Gordon Haddon Clark, A.B., University of Pennsylvania, 1924.

In Sociology:

Edward Butterfield Voorhis, B.S., Dartmouth College, 1924.

FELLOWSHIPS FOR WOMEN

On the Joseph M. Bennett Foundation

In History:

Esther May Bosley, A.B., A.M., Goucher College, 1922; University of Pennsylvania, 1923.

In Romanics:

Hildegarde Bussier Shumway, A.B., A.M., Wellesley College, 1920; University of Pennsylvania, 1924.

On the Frances Sergeant Pepper Foundation

In Medical Sciences:

Mary Adelia Bennett, A.B., A.M., Smith College, 1920; University of Pennsylvania, 1923.

On the Fanny Bloomfield Moore Foundation

In Economics:

Sara Landau, A.B., A.M., University of Louisville, 1920, 1921.

In Zoology:

Miriam Jackson Scott, B.S., University of Pennsylvania, 1924.

SCHOLARSHIP

ON THE JOSEPH M. BENNETT FOUNDATION

In English:

MARY KATHRYN WALLACE, A.B., A.M., Ohio Wesleyan University, 1923; University of Pennsylvania, 1924.

FELLOWSHIP

ON THE JOHN FRAZER FOUNDATION

In Physics:

CHIH TEIH CHU, B.S., A.M., Massachusetts Institute of Technology, 1922; University of Pennsylvania, 1924.

JUSSERAND TRAVELING FELLOWSHIP

In Germanics:

EMIL DOERNENBURG, A.B., A.M., Ph.D., Central Wesleyan College, 1907; Northwestern University, 1908; University of Pennsylvania, 1919.

In Romanics:

OTIS HOWARD GREEN, A.B., A.M., Colgate University, 1920; Pennsylvania State College, 1923.

FELLOWSHIP

ON THE E. I. DUPONT DE NEMOURS AND COMPANY

GOSTA AKERLOF, Ph.D., Stockholm, 1921.

TRAVELING SCHOLARSHIPS

ON THE FREDERIC COURTLAND PENFIELD, JR., FOUNDATION

In International Law and Diplomacy:

WILSON LEON GODSHALL, B.S., A.M., Ph.D., University of Pennsylvania, 1919, 1920, 1923.

RICHARD N. THOMPSON, A.B., Cornell University, 1919. In the United States Diplomatic Service, 1920-23.

UNIVERSITY SCHOLARSHIPS

Thirty University Scholarships in the Graduate School have also been awarded.

GOWEN FELLOWSHIP IN LAW

EDMUND GUIDO HAUFF

THOMAS A. SCOTT FELLOWSHIP IN HYGIENE

ETTA FISKE STEEN, A.B.

MOORE HONOR SCHOLARSHIPS

In the Freshman Class:

THEODORE F. FALLS

ROBERT L. GLOVER

In the Sophomore Class:

HERBERT ESTRADA

HORACE W. STEINHOFF

In the Junior Class:

JOHN W. EMLING

ROBERT R. OSBORN

THE JOHN STEWARDSON MEMORIAL SCHOLARSHIP IN ARCHITECTURE

Joseph Francis Booton

THE HENRY GILLETTE WOODMAN SCHOLARSHIP

Gerald Kenneth Geerlings

PRIZES

In the College

A PRIZE OF FIFTY DOLLARS, endowed by the Class of 1880, for the best special examination in Mathematics by a candidate for admission to the course in Arts and Science. To Edward A. Knobelauch.

THE HENRY REED PRIZE, founded by the Society of the Alumni (College), for the best English essay by a member of the Senior Class, College. To Alfred B. Harbage; Honorable Mention to George Gordon Mahy, Jr.

A PRIZE FOUNDED BY THE PHI KAPPA SIGMA FRATERNITY in honor of their founder, Samuel Brown Wylie Mitchell, M.D., of the Class of 1852, for the most meritorious work done in the course in English Composition of the second year. To Joseph Hemphill, 3rd; Honorable Mention to Russell Leake.

THE PHILADELPHIA GROUPE OF THE ALLIANCE FRANCAISE, established in 1904, awards annually a medal to the student of either Junior or Senior Classes who has done the most meritorious work in French over and above the required courses. To Francis H. Taylor.

THE HOWARD KENNEDY HILL PRIZE of twenty-five dollars, founded by the Class of 1899 in memory of their classmate, to be awarded to the member of the graduating class in the course in Arts and Science, who shall have attained the highest average in scholarship during his College course. To Paul Armstrong Turner.

THE HENRY LABARRE JAYNE PRIZE for the best English Composition by a member of the Freshman Class. To Charles Paul Iwanicki.

THE GEORGE ALLEN MEMORIAL PRIZE in Greek, founded by Joseph G. Rosengarten, for the best examination on the Oration of Demosthenes on the Crown. To Adolf C. Gorr.

THE JASPER YEATES BRINTON PRIZE. A prize of a Greek medal to the member of the Sophomore Class in the College who shall pass the best examination in sight-reading in Greek. To Louis Jacob Hershenhorn.

THE GREEK COMPOSITION PRIZE. A Prize of ten dollars, established by a member of the Class of 1880, for the best examination, by a member of the Freshman Class in the College, on Greek Prose Composition with the accents. Divided between Arthur E. Eichelberger and Edward A. Knobelauch.

THE GEORGE SCHLEICHER PRIZES. Under the will of the late George Schleicher, of Philadelphia, the German Society of Pennsylvania awards annually prizes, named after the testator, to students making the best progress in the study of German. First Prize, Henry William Blank; Second Prize, Mordecai Lipkin.

In the Towne Scientific School

THE HUGO OTTO WOLF MEMORIAL PRIZES
In Chemical Engineering, To WILLARD FAIRCHILD HOUGHTON.
In Civil Engineering, To HARRY LLOYD NELSON.
In Mechanical Engineering, To JOHN HUBERT WILCOX, JR.

THE D. VAN NOSTRAND PRIZE to the member of the Junior Class in Civil Engineering who attains the highest general average in scholarship during the Junior year. To WILLIAM HOWE JAMESON.

THE PRIESTLY CLUB PRIZE for the most satisfactory work in Chemistry done by a member of the Graduating Class. To JOHN MINCER McILVAIN.

THE FRAZIER PRIZE. George H. Frazier, Esq., of the Class of 1887, offers annually a prize (founded 1897) of a standard work in literature, to be chosen by him, and of a value of one hundred dollars, to the student in the College, Towne Scientific or Wharton Schools of the University of Pennsylvania, who, being a member of the football team, baseball team, track team, or of the crew, shall attain the highest standing in scholarship. To JOHN JAMES ASHTON.

In the Moore School of Electrical Engineering

THE HUGO OTTO WOLF MEMORIAL PRIZE
In Electrical Engineering, To JOHN L. McKAY, JR.

THE A. ATWATER KENT PRIZE IN ELECTRICAL ENGINEERING, awarded for progress in judgment and general grasp of the broad principles of electrical engineering, and development in personality, and promise of success in his field. To ALEXANDER WOLF.

In the Wharton School

THE JOSEPH WARNER YARDLEY PRIZE, founded by the Class of 1877 in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class. To JOHN LESLIE MILNE. "Life Insurance Trusts."

In the School of Education

MEDAL INSTITUTO DE LAS ESPAÑAS to the student who has shown the greatest proficiency in the study of Spanish. To ALICE P. STERNER.

THE PHILADELPHIA GROUPE OF THE ALLIANCE FRANCAISE MEDAL, to the student in the School of Education, Junior or Senior Class, who has done the most meritorious work in French. To LILLIAN A. SMYTHE.

THE PI LAMBDA THETA SORORITY PRIZE of twenty-five dollars to the woman of the Junior Class who has shown the best qualifications for the teaching profession. To ELIZABETH COOKE.

In the School of Fine Arts

THE AMERICAN INSTITUTE OF ARCHITECTS MEDAL awarded to that student receiving the degree of Bachelor of Architecture, who shall have had the highest record in his class throughout his course. To JOHN LANE EVANS.

THE FACULTY MEDAL IN ARCHITECTURE awarded to that student, candidate for the degree in architecture, who shall have attained the highest standing throughout his Senior year. To ARTHUR A. WEIDNER.

THE ARTHUR SPAYD BROOKE MEMORIAL PRIZE MEDALS for meritorious work in architectural design.

First Medal, Gold, Distinguished Rank, To John Lane Evans.
Second Medal, Silver, Superior Excellence, To Boris J. Riaboff.
Third Medal, Bronze, Superior Excellence, To Louis Isadore Kahn.

HISTORIC ORNAMENT MEDALS, two medals of equal rank, offered by John Frederick Harbeson, M.S. in Arch., to members of the two classes in Historic Ornament.

First Term, To Sydney Carter Jelinek.
Second Term, To Guy Edwards Hecklinger.

THE SAMUEL HUCKEL, JR., ARCHITECTURAL PRIZE awarded annually, in two parts of sixty dollars and forty dollars, respectively, for best essays on a general architectural topic.

First Prize, To J. Donnell Tilghman.
Second Prize, To Wilfred S. Lewis.

FRANK MILES DAY MEMORIAL PRIZES to promote facility in writing among students in Architecture.

First Prize, To Henry Coleman Baskerville.
Second Prize, To Donald Beach Kirby.
Honorable Mention, Fred Fretz Martin.

In the School of Medicine

THE ALUMNI MEDAL AND PRIZE of fifty dollars, offered by the society of the Alumni of the School of Medicine of the University, to the member of the Graduating Class who attains the highest general average in examinations. (Only those members of the Graduating Class who have taken the last three years of the course in Medicine at this University are eligible.) To Lawrence Francis Fluehr.

THE DR. SPENCER MORRIS PRIZE. The annual income, derived from the investment of Ten Thousand Dollars, is awarded each year to that Medical Student of the Graduating Class who shall pass the best examination for the degree of Doctor of Medicine. To Lawrence Francis Fluehr.

THE FREDERICK A. PACKARD PRIZE of One Hundred Dollars to the member of the Graduating Class who has proven most proficient in the course in Clinical Medicine. To Katherine S. Andrews.

OBSTETRICS PRIZE of a completely equipped obstetrical bag offered by the Professor of Obstetrics to the member of the fourth-year class presenting the best notes on the conference and clinics of the fourth year in Obstetrics. To Albert M. Vollmer.

OBSTETRICS PRIZE. The Professor of Obstetrics offers a Prize of an obstetrical forceps to the member of the Graduating Class who furnishes the best report of a case of Obstetrics occurring in the University Maternity Hospital. To Edward John Tracey.

CHARLES A. OLIVER PRIZE. (Gold Medal.) To those students in the Graduating Class in the Department of Medicine who shall annually receive the highest average and pass the best examination on Ophthalmology. To Thomas Brice Mitchell.

MARY ELLIS BELL PRIZE. Founded in 1923, by Dr. Edward B. Krumbhaar. This Prize of a medal and twenty dollars will be given annually to the student doing the best piece of Medical Research. To E. M. Landis and his collaborators, W. L. Long, J. M. Dunn, C. L. Jackson and Usher Meyer, *all of the Second-year Class.*

In the Law School

THE PETER McCALL PRIZE to the member of the Graduating Class who holds the highest standing in the Class. To PHILIP WALLIS; Honorable Mention, GERALD F. FLOOD.

THE P. PEMBERTON MORRIS PRIZE to the member of the Graduating Class who obtains the highest grades in the examinations in Evidence, Practice in Law and in Equity. To PHILIP WALLIS; Honorable Mention, CHARLES I. THOMPSON.

In the School of Veterinary Medicine

THE J. B. LIPPINCOTT PRIZE of One Hundred Dollars for the member of the Graduating Class who has attained the highest general average in examinations during the four years. To JAMES HENDRICKS SPENCE.

THE JEANNETTE BLAIR PRIZE of Fifty Dollars to the member of the Senior Class who does the best work in the Small Animal Clinic. To FRED D. WOOD.

Other Prizes

DAVID MILNE PRIZE, offered by David Milne. The income of a fund of approximately $1,000 is available each year for the purchase of a gold watch to be presented to a member of the Graduating Class of the Training School for Nurses of the Hospitals of the Graduate School of Medicine. To ELSIE REID.

MUSICAL CLUB PRIZE. A prize offered by Mr. David Halstead, for the words or music, or both, of the best song or other composition submitted in competition, under such terms and conditions as may be determined by the Musical Club Prize Fund Committee. To DARRELL HEVENOR SMITH.

SOPHOMORE HONORS

In the College

ROLAND DONALD CAIN
ANTHONY R. CAMERO
BERNARD ISAAC COMROE
JAMES FISHER IRWIN
WILLIAM FRITZ KENNEDY
W. HYLLIS SEWARD
JOSEPH TIRACCHIA

In the School of Fine Arts

JEANNETTE LEVIT

In the Towne Scientific School

GEORGE HALLETT TURNER

In the School of Education

OTTILLIE ANNA ELSA FLEISCHMANN

VI.—The Graduate School

CREDENTIALS OF CANDIDATES

February 14, 1924

The Faculty of the Graduate School held its formal session for the reception of the credentials of candidates for the higher degrees on Saturday, February 14, 1924, in College Hall, the Dean in the chair.

Thirty-eight candidates for the Master's degree were presented to the Faculty by the Representative of the Group Committee, who, in each case, read a brief sketch of the candidate's life, certifying that all the conditions prescribed by the statutes of the University and the rules of the Graduate School had deen fulfilled, and recommending the candidates for the Master's degree.

Their names follow:

MASTER OF ARTS

Nobori Asaji, A.M., Hiroshima Higher Normal College, 1920. Philosophy.
Anna G. Campbell, B.S., in Ed. University of Pennsylvania, 1920. Education.
Dorothy Cathell, A.B., University of Pennsylvania, 1921. English.
Eva May Chadwick, B.S. in Ed., Temple University, 1918. History.
Amy Chateauneuf, B.S. in Ed., University of Pennsylvania, 1921. Education.
Chih Teih Chu, B.S., Massachusetts Institute of Technology, 1922. Physics.
Walter Francis Coles, A.B., University of Pennsylvania, 1909. Education.
John Wendell Cooper, A.B., University of Pennsylvania, 1922. Psychology.
Dorothy Pennypacker Davis, B.S. in Ed., University of Pennsylvania, 1917. English.
Leland G. Edinger, B.S. in Ec., University of Pennsylvania, 1921. Economics.
Harold A. Fellows, B.S. in M.E., University of Pennsylvania, 1921. Economics.
Waldo Emanuel Fisher, B.S., Columbia University, 1917. Industry.
Arnold K. Henry, B.S. in Ec., University of Pennsylvania, 1921. Economics.
John Francis Jeremiah, B.S. in Ec., University of Pennsylvania, 1920. Economics.
Amos John Krebs, A.B., Pennsylvania College, 1916. Education.
Charles Miller Kresge, A.B., Franklin and Marshall, 1922. Education.
Robert Weiss Kunzig, B.S. in Ch.E., University of Pennsylvania, 1912. Education.
Georgiana Sharpless Mendenhall, B.S. in Ed., University of Pennsylvania, 1917. Psychology.
Nellie Elizabeth Monroe, A.B., Oberlin College, 1919. English.
Yale Samuel Nathanson, B.S. in Ed., University of Pennsylvania, 1923. Anthropology.
Merle Middleton Odgers, A.B., University of Pennsylvania, 1922. Latin.
Alene Ralston, B.S., University of Pennsylvania, 1919. Psychology.
Thomas Evans Robinson, A.B., Temple University, 1917. English.
Quincy Alvin W. Rohrbach, A.B., Franklin and Marshall, 1922. Education.
Harry Peters Rothermel, A.B., Lafayette, 1901. Education.
Mary Adelia Shockley, A.B., Missouri University, 1921. History.
Sophia Field Spielberg, B.S. in Ed., University of Pennsylvania, 1917. English.

James Stokeley, Jr., B.S. in Ed., University of Pennsylvania, 1922. Psychology.
Faye C. Swindell, A.B., Nebraska State Teachers' College, 1920. Education.
Arthur Frederick Symond, B.S., South Dakota State College, 1922. Political Science.
Esther Gertrude Taylor, A.B., Swarthmore College, 1919. English.
Ray Beach Wallace, B.S. in Ec., University of Pennsylvania, 1921. Psychology.
Blanche Ethel Weekes, B.S. in Ed., University of Pennsylvania, 1923. Education. (*As of June, 1923.*)
Charles Edward Williams, B.S. in Ec., University of Pennsylvania, 1916. Education.
George Lloyd Wilson, A.B., Swarthmore, 1918. Economics.

MASTER OF SCIENCE

Frederick Hanscom Emery, B.S., New Hampshire College, 1922. Chemistry.
Arthur Kenneth Graham, B.S. in C.E., University of Pennsylvania, 1919. Chemistry.
Eugene Markley Landis, A.B., University of Pennsylvania, 1922. Zoölogy.

After the credentials had been read, the candidates present withdrew, and the Faculty unanimously voted to recommend all those whose credentials had been read to the Trustees for the Master's degree.

DOCTOR OF PHILOSOPHY

Five candidates, certified by the Executive Committee as having fulfilled all the conditions prescribed for the degree of Doctor of Philosophy, were then brought before the Faculty. Each candidate was presented to the Faculty by a member of the Group Committee in charge of his major subject. The presenter read a sketch of his academic record and an outline of the scope and content of his thesis.

These candidates then withdrew and the Faculty unanimously voted to recommend them to the Board of Trustees for the degree of Doctor of Philosophy.

Degrees were duly conferred on February 16th.

IN ECONOMICS

Presenter: Professor Patterson.

CLARENCE ARTHUR KULP was born in Souderton, Pa. He received the degree of Bachelor of Science in Economics from this University in 1917, and that of Master of Arts in 1921. He has completed 26 units of work, with Economics as his major subject. Since 1919 he has been connected with the Economics Department, and is at the present time Assistant Professor of Insurance.

The title of his thesis is: "Discounting of Dividends by the Stock Market."

This thesis represents the results of an examination of the theory that the organized stock market possesses the ability to forecast certain types of events. The thesis confines itself to events which may be said to take place within the stock market itself, as (*a*) the announcements of corporations of the payment or non-payment of cash dividends, and (*b*) announcements of the disbursement of additional shares of stock, either as "rights" (privileged subscriptions), or as so-called stock dividends.

The study consists of an individual statistical analysis of the price-actions of each of 1140 dividend announcing stocks. The data are then analyzed from two viewpoints. First, it is determined *how effectively* the stock market is able to forecast the announcement of both classes of dividends, or put in the form of a question: In what proportion of the total number of cases does the stock market warn of the coming event? Even adopting a severely strict standard of measurement, the results for *cash dividends* show that discounting is an *absolute* fact in 8 out of every 10 announcements of industrial stocks, and in nearly 9 out of every 10 railroads. The results for *rights* and *stock dividends* are almost identical: 7 announcements of every 10 industrials; 9 of every 10 railroads, are discounted.

The second object of the study is to ascertain the *approximate time* of such discounting, i. e., *how far in advance* of the event does the stock market tell of its approach? It is found that in the case of *cash dividends*, nearly 3 months advance notice is given for all industrial stocks, and nearly 2½ months for all railroad stocks; in the case of rights and stock dividends, the advance notice given is 4.9 months for industrials, 5.8 months for railroads.

IN EDUCATION

Presenter: Professor Jones.

RAYMOND I. HASKELL was born in Bethlehem, N. H. He was granted the degree of Bachelor of Science from Colby College in 1914, and of Master of Arts in 1917. He entered the Graduate School in February, 1919, and received the degree of Master of Arts in 1922. He held a Half University Scholarship in Romanics in 1920-21; and in Education during the year 1922-23. He has a total of 24½ units to his credit, with Education as his major and Romanics as his subordinate subject. At the present time he holds an instructorship in French at the Penn Charter School in this city.

The title of his thesis is "A Statistical Study of the Comparative Results Produced by Teaching Derivation in the Ninth Grade Latin Classes and in the Ninth Grade English Classes of Non-Latin Pupils in Five Philadelphia Schools."

There are four classes in the experiment conducted under the auspices of the American Classical League for the purpose of measuring the contribution to a pupil's English vocabulary during the space of a school year as effected by teaching English by two methods and Latin by two methods, as follows: The Control-English or Non-Latin Class received instruction in the usual and conventional way but with no word-study in which the Latin element occurred. The Experimental-English or Non-Latin Class received the same content and method as the one previously mentioned and in addition a prescribed course in English etymology covering about one-fifth of the class period. The Control-Latin Class avoided word-study as far as possible. The Experimental-Latin Class spent approximately one-fifth of the class period with the study of a prescribed course in pure etymology. The increasing range of English vocabulary resulting in each of the four groups as named was measured with the Thorndike Test of Word Knowledge and the Carr English Vocabulary Test at the beginning, in the middle, and at the end of the year during which the experiment was in progress. The only significant result is that conscious effort in the study of etymology in the Experimental-Latin Class produced a large and important contribution to the child's English vocabulary as compared with that effected by the study of the English course of the Control-English or Non-Latin Class in which there was no word-study in which Latin element was permitted to enter.

IN HISTORY

Presenter: Professor Howland.

HALFORD LANCASTER HOSKINS was born in Carmel, Ind. He received the degree of Bachelor of Arts from Earlham College, and that of Master of Arts from this Univeristy, 1913 and 1921 respetively. He has completed 24⅙ units of work, 4⅔ of which are from Chicago, and 8½ are from Harvard. He has made Modern European History his major, and English and American History his subordinate subjects. At the present time Mr. Hoskins is Assistant Professor of History at Tufts College.

The title of his thesis is: "BRITISH ROUTES TO INDIA, 1798-1840."

Mr. Hoskins' thesis deals with the beginnings of the British trade routes to the East by way of the Eastern Mediterranean carrying the study down to about the middle of the last century.

Before the seventeenth century, English trade with the orient proceeded through Levantine ports. But with the Chartering of the East India Company, English vessels largely deserted the Levant, and from the sixteenth to the nineteenth century, beginning with the Egyptian and Syrian campaigns of Napoleon Bonaparte. This new interest, which suggested the opening of shorter routes under British auspices, would have borne little fruit, perhaps, but for the contemporaneous development of the steamship. This made possible the development of a new route on the eastern Mediterranean, "overland" across the Isthmus of Suez, down the Red Sea and across the Indian Ocean to India before 1840 for purposes of travel and communication. On the other hand, an alternative line across Syria, through Mesopotamia, down the Persian Gulf and thence to India was found to be then impracticable.

Both of these natural highways from the Mediterranian eastward crosses Turkish territory. This fact not only underlies much of British foreign policy towards Turkey during this period but very largely determined British relations with France and Russia.

IN ROMANICS

Presenter: Professor J. B. BECK.

GILBERT MALCOLM FESS was born at Fargo, N. Y. He received the degrees of Bachelor of Philosophy and Master of Arts from Alfred College and Syracuse University in 1912 and 1914 respectively. He entered the Graduate School of this University in the fall of 1921. He has completed courses amounting to 32 units, 18 of which are for work completed at Michigan, Syracuse and Cornell.

Mr. Fess held an instructorship in Romanics at the University of Pennsylvania from 1921 to 1923, and is at present Professor of Romance Languages at Hillsdale College, Michigan.

The title of his thesis is: "THE CORRESPONDENCE OF PHYSICAL AND MATERIAL FACTORS WITH CHARACTER IN BALZAC."

An introductory chapter discusses the background of literature and experience which explains Balzac's interest in the relationship between character and its physical and material accompaniments.

A second part treats his definitions of physiognomy, his ideas respecting its origin and nature, and the various sources of his theories regarding its relationship to character. The discussion of Balzac's indebtedness to the phrenological writings of Franz Joseph Gall and the physiognomical formulas of Johann Caspar Lavater occupies a large share of this chapter. Illustrations are drawn from the *Human Comedy*, emphasis being laid on the large part physiognomical symbolism plays in the author's descriptions. The apparently original formulas for the interpretation of physiognomy also receive attention.

The use of expressive movement, the gait, gesture, the glance, the voice as an expression of character and also certain material factors such as, clothing, furniture, etc., are also considered.

The conclusion is drawn that the expression of character by physical and material factors is a constant feature of Balzac's writings; it began with his youthful novels published in 1822 and 1823 and continued to the end of his literary carreer. It was not only an important element in his individual development as an artist but likewise a formative factor in the genesis of French realism.

Presenter: Professor J. P. W. CRAWFORD.

EDWIN BUCHER WILLIAMS was born at Columbia, Pa. He received the degrees of Bachelor of Arts and Master of Arts from this University in 1914 and 1916 respectively, and was Harrison Scholar in Romance Languages in 1915-16, and Harrison Fellow in Romance Languages in 1916-17, and since 1919 has been an instructor in the Department of Romanic Languages. He has completed courses amounting to 24 units.

The title of his thesis is: "THE LIFE AND DRAMATIC WORKS OF GERTRUDIS GOMEZ DE AVELLANEDA."

Gertrudis Gomez de Avellaneda, born in Cuba in 1814, took up her residence in Spain in 1836 and as dramatist, novelist and poetess occupies an important place in the history of Spanish letters toward the middle of the nineteenth century. Her works offer an interesting example of the decline of romanticism and the revival of classicism in Spain between the years 1840 and 1860.

The first chapter includes a study of her life, based upon previous biographies and critical articles, and her voluminous published correspondence.

Three chapters are devoted to an analysis of her tragedies, dramas and comedies. The plays have been studied, first, with the object of determining their sources in historical material or in earlier dramatic literatire; second, in order to trace the influence of contemporaneous dramatic genres; third, to analyze the development of the author's æsthetic ideals as evidenced by later revisions of a number of the plays; and fourth, to ascertain what elements in the plays may be directly related to known factors in her life.

In conclusion, it is pointed out that Senora Avellaneda inherited much from both classicism and romanticism, and that her dramatic art was eclectic. A brief study of the development of the hero in her plays reveals how her psychological experiences determined her ideal of the heroic, and how this ideal in turn affected her attitude toward religion.

VII.—The Graduate School

CREDENTIALS OF CANDIDATES

June 14, 1924

The Faculty of the Graduate School held its formal session for the reception of candidates for the higher degrees on Saturday, June 14, 1924, in Houston Hall, the Dean of the Graduate School in the chair.

One hundred and fifty-one candidates for the Master's degree were presented to the Faculty by the Representative of the Executive Committee, who, in each case, read a brief sketch of the candidate's life, certifying that all conditions prescribed by the statutes of the University and the rules of the Graduate School had been fulfilled, and recommending the candidates for the Master's degree.

Their names follow:

MASTER OF ARTS

Augustus Henry Able, 3d, A.B., University of Pennsylvania, 1922. English.
Esther Hyde Alden, B.S., Columbia University, 1919. Sociology.
Paul Humiston Alling, A.B., Trinity College, 1920. Economics.
Mary Jenkins Andersen, A.B., Swarthmore College, 1914. English.
Forrest B. Ashby, B.S. in Ec., University of Pennsylvania, 1922. Economics.
Iredell Logan Aucott, A.B., University of Pennsylvania, 1917. Education.
Sara E. Beardslee, A.B., A.B., Albright College, 1898; Temple University, 1911. Education.
Irvin Bendiner, B.S. in Ed., University of Pennsylvania, 1921. Insurance.
Ernest M. Bickell, B.S., Gettysburg College, 1921. Education.
Benjamin E. Biswanger, A.B., Princeton University, 1914. Philosophy.
Jason Albert Blackburn, A.B., Swarthmore College, 1914. Education.
Theophilus Ernest Martin Boll, A.B., University of Pennsylvania, 1922. English.
Emma L. Bolzau, B.S. in Ed., University of Pennsylvania, 1922. History.
Earl M. Bowman, A.B., McPherson College, 1923. Philosophy.
Robert Louis Briggs, B.S., University of Pennsylvania, 1916. Education.
Joseph S. Butterweck, B.S., University of Pennsylvania, 1922. Education.
Archibald Campbell, A.B., University of Washington, 1923. Education.
Ruth Stephens Capers, A.B., Wheaton College, 1923. English.
Allen W. Cates, A.B., University of Arkansas, 1915. Education.
Allan Griffith Chester, A.B., University of Pennsylvania, 1922. English.
W. Walker Cheyney, B.S. in C.E., University of Pennsylvania, 1920. Education.
Harold James Christ, A.B., University of Pennsylvania, 1920. English.
Arthur S. Clark, B.S. in Ed., University of Pennsylvania, 1921. Psychology.
Robert William Coppedge, A.B., A.M., Kansas University, 1899–1900. Education.
Carroll Roop Daugherty, A.B., Lebanon Valley College, 1921. Economics.
D. Sutherland Davidson, B.S. in Ec., University of Pennsylvania, 1923. Anthropology.

Master of Arts (*Continued*)

Alan O. Dech, A.B., Albright College, 1919. English.
Jennings B. Derr, Ph.B., Muhlenberg College, 1920. Education.
Werner Elster De Turck, A.B., A.M., Franklin and Marshall College, 1905. Potomac University. 1914. Education.
Norman Edward Diehl, B.S., Pennsylvania State College, 1914. Psychology.
Willis Le Roy Dillman, A.B., Muhlenberg College, 1922. Sociology.
Harry Forrest Dorsey, A.B., Ohio Wesleyan College, 1914. History.
Benjamin Druckerman, B.S., Ohio State University, 1920. Botany.
Paul Dawson Eddy, A.B., University of Pennsylvania, 1921. History of Religions.
Felice Elkin. A.B., Radcliffe College, 1923. English.
Rebecca Patton Elliott, A.B., University of Pennsylvania, 1919. History.
Price Bowman Engle, B.S., Temple University, 1914. Education.
Kathryn Davis Ewart, B.S., in Ed., University of Pennsylvania, 1923. Psychology.
Arthur Huff Fauset, A.B., University of Pennsylvania, 1921. Anthropology.
Walter Dewey Ferguson, A.B., University of Pennsylvania, 1921. English.
Henry Rudolph Flanegan, B.S. in Ec., University of Pennsylvania, 1922. Economics.
Celia Frank, B.S., Temple University, 1918. History.
Harold C. Fry, A.B., Muhlenberg College, 1921. English.
Kuranoske Fujii, B.S., Ottawa University, 1921. Sociology.
Catharine J. Gage, B.S. in Ed., University of Pennsylvania, 1919. Psychology.
M. Elizabeth Garbarino, B.S. in Ed., University of Pennsylvania, 1923. Latin.
Leland James Gordon, B.S. in Ec., University of Pennsylvania, 1922. Political Science.
Morris Samuel Greth, A.B., Muhlenberg College, 1922. Education.
Dorothy Kern Hallowell, A.B., University of Pennsylvania, 1922. Psychology.
Horace Wilmer Hannah, A.B., University of Pennsylvania, 1922. Education.
Grace Ellen Harbold, B.S. in Ed., University of Pennsylvania, 1923. History.
Mae Elizabeth Harveson, B.S. in Ed., University of Pennsylvania, 1918. Education.
Frederick William Heins, A.B., Wittenberg College, 1920. Philosophy.
Richard M. Holme, B.S., Temple University, 1917. Political Science.
David S. Hsiung, B.S., Heidleberg University, 1923. Physics.
Ferdinand Myron Isserman, A.B., University of Cincinnati, 1919. Religions.
Arthur Edwin James, B.S., Pennsylvania State College, 1921. Education.
Elsie Isabella Jamieson, A.B., Wellesley College, 1910. Romanics.
Inez M. Johnson, B.S., University of Pennsylvania, Feb., 1924. (Work completed 1923.) Education.
Paul John Jones, A.B., University of Pennsylvania, 1920. Romanics.
Clyde Mc Carty Kahler, B.S. in Ec., University of Pennsylvania, 1922. Economics.
Charles G. Kalemkarian, A.B., Drake University, 1923. History.
I. Howell Kane, A.B., Dickinson College, 1921. History.
William Archibald Karraker, Ph.B., Ewing College, 1913. History of Religions.
Samuel Katz, B.S. in Ed., University of Pennsylvania, 1921. Education.
Ruth Elizabeth Kelly, A.B., Wellesley College, 1919. Economics.
Everett Stanley Kelson, B.S., Colby College, 1914. Education.
William L. Kershaw, B.S., University of Pennsylvania, 1912. Education.
Shih-Hsuan King, B.S., University of Communications, 1922. Economics.
Franklin Brunell Krauss, A.B., University of Pennsylvania, 1922. Latin.
J. Ira Kreider, A.B., Franklin and Marshall College, 1920. Education.
John Robert Lechner, Ph.B., Denison University, 1921. History of Religions.
Jessie M. Lightfoot, B.S. in Ed., University of Pennsylvania, 1921. Psychology.
Mary Lyndell Lukens, A.B., Swarthmore College, 1918. Education.
Eugenie Margaret Lynch, A.B., Bryn Mawr College, 1918. Latin.
Robert C. McKenny, Ph.B., Brown University, 1921. History.
Imogene Elizabeth McNally, B.S. in Ed., University of Pennsylvania, 1923. Anthropology.

Master of Arts (*Continued*)

Thomas Taylor MacEwen, A.B., George Washington University, 1919. History of Religions.
Helen Dorothy Maxwell, Ph.B., University of Chicago, 1918. English.
Charlotte Elizabeth Metzger, A.B., Moravian College for Women, 1923. English.
William Henry Micheals, A.B., Dickinson College, 1907. Education.
Arthur Thomas Michler, A.B., Muhlenberg College, 1917. Education.
Percy Edwin Miller, B.S., Pennsylvania State College, 1920. Education.
Grace Edna Moore, A.B., Swarthmore College, 1921. English.
Josephine Power Mottheral, B.S. in Ed., University of Pennsylvania, 1917. Sociology.
Marie C. Mulholland, A.B., Temple University, 1918. History.
Josephine Aloysea Murphy, B. S. in Ed., University of Pennsylvania, 1922. Education.
Walter Loy Myers, A.B., Central Normal College, 1923. Education.
Charles Edward Neville, B.S. in Ed., University of Pennsylvania, 1917. Education.
David Newmark, B.S. in Ed., University of Pennsylvania, 1921. Education.
Irvin O. Noll, B.S. in E.E., Pennsylvania State College, 1909. Education.
Robert Martin Oberholser, Ph.B., Franklin and Marshall College, 1912. Education.
Philip Childs Pendleton, B.S. in Ec., University of Pennsylvania, 1922. Economics.
Martin L. Peters, B.S., Gettysburg College, 1913. Education.
William J. Phillips, A.B., University of Pennsylvania, 1920. English.
Ernest Yeakle Raetzer, B.S., Ursinus College, 1919. History.
Elsie Elizabeth Reynolds, A.B., Allegheny College, 1924. (Work completed, 1923.) English.
Edgar Thomas Robinson, A.B., Ursinus College, 1914. Education.
Frank R. Robinson, B.S. in Ed., Temple University, 1918. Education.
Anna Margaret Root, A.B., Randolph-Macon Woman's College, 1919. Sociology.
Elizabeth Rosengarten, B.S. in Ed., University of Pennsylvania, 1920. Education.
Annie Adele Rudolph, B.S. in Ed., University of Pennsylvania, 1918. Education.
Leonard J. Fox Ruttan, A.B., McMaster University, 1920. History of Religions.
Matthias A. Shaaber, A.B., University of Pennsylvania, 1918. English.
William Sharlip, B.S., University of Pennsylvania, 1916. Education.
Heman Summerell Shaw, A.B., Davidson College, 1908. History.
Rea Voke Shover, Ph.B., Ohio Northern University, 1914. Sociology.
Hildegarde Bussier Shumway, A.B., Wellesley College, 1920. Romanics.
Rubin M. Sindell, B.S., University of Pennsylvania, 1921. English.
John R. Skeen, B.S., Pennsylvania State College, 1921. Botany.
Harriet L. Smith, A.B., University of Michigan, 1922. English.
Lewis N. Snyder, A.B., Gettysburg College, 1916. Education.
George M. Sowers, A.B., Muhlenberg College, 1922. English.
Orville Tutwiler Spessard, A.B., Lebanon Valley College, 1921. Education.
J. Evaline Stellwagon, B.S., University of Pennsylvania, 1915. English.
Dorothy Lee Stevens, A.B., Wellesley College, 1922. English.
Winifred Bayard Stewart, A.B., University of Pennsylvania, 1922. Psychology.
Ethel G. Stiffler, A.B., Goucher College, 1922. Botany.
Russell Warren Stine, A.B., Muhlenberg College, 1922. English.
Mary E. Sullivan, A.B., University of Pennsylvania, 1921. Education.
Helen C. Taylor, A.B., Wilson College, 1921. History.
Joseph Hooker Thomas, Jr., B.S. in Ed., University of Pennsylvania, 1920. Education.
Emma Osborn Thompson, A.B., Bryn Mawr College, 1905. Education.
Joseph Marshall Thompson, A.B., Western Maryland College, 1910. Education.
Conrad T. Waldie, B.S., Temple University, 1916. Education.
Mary Kathryn Wallace, A.B., Ohio Wesleyan University, 1923. English.
Linneaus Arthur Walton, B.S., Ursinus College, 1920. Education.

Master of Arts (Continued)

Harry A. Warshaw, B.S. in Ed., University of Pennsylvania, 1921. Education.
Harry Derrickson West, A.B., Washington College, 1919. History of Religions.
Marie Elizabeth Wilhelmi, B.S. in Ed., University of Pennsylvania, 1922. Psychology.
Mildred Estelle Williard, B.S., Swarthmore College, 1920. English.
Roy Lutz Winters, A.B., Franklin and Marshall College, 1921. English.
George Clodder Wollman, B.S., University of Pennsylvania, 1920. Romanics.
Charles L. Wood, Jr., B.S. in Ed., Temple University, 1922. Psychology.
Frederick M. Worley, B.S. in Ec., University of Pennsylvania, 1921. Economics.
Zaidee Garr Wyatt, A.B., A. B., Bessie Tift College, 1909; George Washington University, 1910. Education.
Pae-Yeo Yuan, A.B., University of Peking, 1918. Education.

MASTER OF SCIENCE

William Ralph Gawthrop, A.B., Swarthmore College, 1918. Chemistry.
J. Erskine Hawkins, A.B., University of Pennsylvania, 1919. Chemistry.
Laura Lamb, B.S. in Bi., University of Pennsylvania, 1910. Zoölogy.
Joseph William Lipp, B.S. in Ch., University of Pennsylvania, 1923. Chemistry.
Walter J. Seeley, B.S. in E.E., Polytechnic Institute of Brooklyn, 1917. Physics.
Nicol Hamilton Smith, B.S. in Ch., University of Pennsylvania, 1923. Chemistry.
Josephine Willis, A.B., University of Pennsylvania, 1923. Zoölogy.

MASTER OF BUSINESS ADMINISTRATION

Tuh Yui Chang, A.B. in Ec., St. John's University, 1922. Insurance.
Chen-Hsien Li, B.S., College of Commerce, University of Illinois, 1923. Commerce and Transportation.
Noble Flower McCredy, B.B.A., University of Washington, 1922. Industry.
Hiram A. Munn, B.S. in Ec., Iowa State College, 1922. Industry.
Sheng-Han Tao, B.S. in B.A., Ohio State University, 1923. Insurance.
Fayette S. Warner, C.E., Rensselaer Polytechnic Institute, 1921. Industry.

After the credentials had been read, the candidates present withdrew, and the Faculty unanimously voted to recommend all those whose credentials had been read to the Trustees for the Master's degree.

DOCTOR OF PHILOSOPHY

Thirty-six candidates, certified by the Executive Committee as having fulfilled all the conditions prescribed by the degree of Doctor of Philosophy, were then brought before the Faculty. Each candidate was presented to the Faculty by a member of the Group Committee in charge of his major subject. The presenter read a sketch of his academic record and an outline of the scope and content of his thesis.

IN ANTHROPOLOGY

Presenter: Professor Speck.

ALFRED IRVING HALLOWELL was born in Philadelphia, Pa. In 1914 the University of Pennsylvania conferred upon him the degree of Bachelor of Science in Economics. He entered the Graduate School in 1916 and received the degree of Master of Science in 1920. He held a Harrison Fellowship during the year 1922-23 in Anthropology which is his major subject. He has a total of 28 units. He is an Instructor in Anthropology.

The title of his thesis is: "BEAR CEREMONIALS IN NORTH AMERICA AND ITS EURASIATIC PARALLELS."

The natural philosophy of peoples at so-called primitive culture levels has not yet been worked out with any fullness of detail for specific cultures. The attitudes manifested towards the faunal world present an especially attractive field for investigation. Research has inclined towards deductive interpretations in terms of "animism," "anthropomorphism," etc., which only serve to emphasize similaraties and consequently basic differences in beliefs are often overlooked. This thesis has taken as its point of departure the detailed investigation of a concrete problem viz., the ceremonial treatment of the bear among the northern aborigines of America and Eurasia and the peculiar place it occupies in their beliefs, as a channel of approach to the deeper layers of thought which characterize their attitudes towards the animal world at large.

It has been shown that an interpretation of the complex of ideas and practices of which the bear is the focus cannot be based upon similar psychological responses to the qualities displayed by the animal as having given rise to parallelism in attitude and treatment. On the contrary these resemblances in beliefs and practices when viewed from the standpoint of geographical distribution are seen to be limited to an area much smaller than that in which species of the bear occur. This raises an interesting historical question. That is to say, the basic elements in the complex, exhibited from Labrador to Lapland, appear to be genetically related to an ancient sub-arctic hunting culture, which, including other traits of inter-continental distribution was probably shared by certain American and Asiatic peoples in prehistoric times. Owing to racial migrations, cultural diffusion and the integral development of peoples both the subjective and objective features of bear ceremonialism have assumed somewhat different configurations in the various cultures studied, and consequently varying degrees of emphasis are observable. The bear festivals of the Gilyak and Ainu represent the peak of elaboration which the simpler, basic, and more widespread elements have undergone in the course of time.

IN CHEMISTRY

Presenter: Professor MUELLER.

HORACE RICHARD BLANK was born in Philadelphia, Pa. He received the degree of B. S. in Chemistry from the University of Pennsylvania in 1919, and entered the Graduate School that fall. His major subject is Inorganic Chemistry. He has a total of 24+ units. He has held an instructorship in Chemistry here from 1921 to date.

The title of his thesis is: "THE ALLOTROPY OF GERMANIUM DIOXIDE."

This investigation concerns the preparation of a hitherto unknown form of germanium dioxide which differs essentially from the ordinary oxide as described by previous writings.

It is shown that an insoluble modification of germanic oxide exists which can be prepared by evaporation of aqueous solutions of the oxide and subsequent treatment of the solid residue under certain conditions of temperature. With the temperature constant at 280° C. the yield of insoluble oxide increases with the time according to the curve of a mono-molecular reaction, but the reaction reaches completion when only part of the oxide is converted to the new form. This behavior is explained by supposing that the oxide exhibits allotropy, and the probable existence of three modifications of this substance is suggested.

Presenter: Professor HARNED.

MAURICE HENRY FLEYSHER was born in Ukraine, Russia. He received the degree of B.S. in Chem. from this University in 1921, and entered the Graduate School the following Fall. He held a University Scholarship in Chemistry during the year 1921-22, and a Harrison Scholarship in that subject during 1922-23. The degree of M.S. was conferred upon him in June, 1922. He has completed 24 units of work.

The title of his thesis is: "THE ACTIVITY COEFFICIENTS AND TRANSFERENCE NUMBERS OF HYDROCHLORIC ACID IN ALCOHOLIC SOLUTIONS."

Electromotive forces of concentration cells, with and without liquid junction, containing hydrochloric acid in alcohol and alcohol-water solvents, were measured. The concentration of the hydrochloric acid was varied from 0.001 to 3.6 molal.

From measurements of the cell without liquid junction the relative activities of hydrochloric acid in these solvents were computed. Approximations of the absolute values of the activity were made by considering the conductance data of Goldschmidt and the theoretical considerations of Debye and Huckel.

It was observed that the activity coefficient values in solvents containing water passed through the minimum near the acid concentration 0.5 molal, while those in alcohol did not show this property. This minimum is undoubtedly due to the presence of water and indicates ionic hydration.

Measurements of the cell with liquid junction were combined with those without liquid junction and the transference numbers of the hydrogen and chloric ions in the solvents alcohol and 50 mol per cent alcohol-water were computed at each concentration of the acid in the range investigated.

Presenter: Professor HARNED.

RUSSEL DAVIS STURGIS was born in Wilmington, Del. He received the degree of B.S. in Chemistry from the University of Delaware in 1919, and entered the Graduate School in the fall of 1920. He has majored in Physical Chemistry, and received the Master's degree in 1921. He has completed 24 units of work. He has held an Assistantship in Chemistry here from 1920 to date.

The title of his thesis is: "THE FREE ENERGY OF DILUTION OF SULPHURIC ACID IN THE PRESENCE OF CERTAIN SULPHATE ELECTROLYTES."

This investigation was undertaken in order to determine the activity coefficient of sulphuric acid in the presence of certain univalent and bivalent sulphates. This was done by measuring the electromotive forces of cells containing 0.01 molal and 0.1 molal sulphuric acid respectively, followed by the measurement of the electromotive forces of a series of cells containing 0.01 and 0.1 molal sulphuric acid in the presence of increasing amounts of potassium sulphate, sodium sulphate and magnesium sulphate, respectively.

The electromotive force of a cell of this type is due to the transfer of a mol of acid from the acid-salt mixture to the pure acid, from which the free energy of transfer of the acid may be obtained and from that its activity and activity coefficient.

Electromotive forces were measured and activity coefficients calculated for cells containing sulphuric acid and potassium sulphate and sulphuric acid and sodium sulphate at a constant total concentration of 0.1 molal. From these measurements it was found that the linear equation for the activity coefficient holds between 0.003 and 0.06 molal acid concentration.

Presenter: Professor MUELLER.

EDWIN F. PIKE was born in Chester, Pa. He received the degree of B.S. in Ch.E. from this University in 1920, and entered the Graduate School the following Fall. The Master's degree was conferred upon him in 1921. Inorganic Chemistry is his major subject. He has completed 24 units. At the present time he holds an instructorship in Chemistry in this University.

The title of his thesis is: "STUDIES ON THE PREPARATION OF GERMANIUM AND CERTAIN OF ITS COMPOUNDS."

Previous investigators have disagreed as to the volatility of metallic germanium in pure hydrogen. It has been shown in this investigation that pure metallic germanium is volatile in hydrogen and in vacuo at temperature below its melting point.

It is shown that germanium dioxide when heated with germanium in vacuo is reduced to germanous oxide.

The preparation of pure germanium is described and a method for determining the purity of the metal is suggested. The melting points of germanium in carbon dioxide, hydrogen, and in vacuo are determined.

Some hitherto unreported salts of germanic acid have been prepared.

IN ECONOMICS

Presenter: Professor JOHNSON.

MICHAIL DORIZAS was born in Constantinople, Turkey. He received the degree of A.B. from Roberts College in 1907, and entered the Graduate School as a regular student in 1912. He held a Harrison Scholarship in Economics, his major subject, the first term of 1912-13, and a University scholarship in the same field during the next two years. The degree of A.M. was conferred upon him in 1915. During the year 1915-16 he held a University scholarship in Anthropology. He has completed 36 units of work. At the present time he holds an instructorship in the Wharton School.

The title of his thesis is: "THE FOREIGN TRADE OF GREECE: THE CONTROLLING, ECONOMIC, AND POLITICAL FACTORS."

The foreign trade of a country depends upon its location and products, and upon the character and needs of its people. The discussion of the nature, volume, and distribution of the foreign trade of Greece is preceded by a study of the location, climate, size, and physiography of Greece, of the distribution and character of population, of the agricultural and mineral resources, and the manufacturing and transportation facilities in their relation to foreign commerce.

The influences of the political and financial condition of Greece upon her foreign trade have also been analyzed, and the banking facilities, tariff policies, and the fluctuations of the drachma have been discussed.

The volume and nature of imports and exports are analyzed and their source and destination in foreign countries are set forth. Particular emphasis has been placed on the trade of Greece with the United States.

The pre-war, war, and post-war periods of the country's trade have been considered, and they have been discussed. The thesis ends with a statement concerning and with suggestions as to the desirable commercial policy to be followed in the future.

Presenter: Professor PATTERSON.

WILLIAM WALLACE HEWETT was born in Philadelphia, Pa. He received the degree of A.B. from Swarthmore in 1920, and entered the Graduate School that Fall. He has made Economics his major subject, and received his Master's degree in 1922. He has a total of 27 credits. He has held an instructorship in Economics in the Wharton School from 1920 to date.

The title of his thesis is: "THE DEFINITION OF INCOME AND ITS APPLICATION IN FEDERAL INCOME TAXATION."

Economists have written extensively on the subject of capital, but there has been little attention directed towards the study of income definition. This dearth of material, combined with the growing importance of modern income taxation, has been the motivation of the thesis.

The first part of the thesis is an analysis of the concept of income as it has been developed in the writings of Economists. A critical estimation is made and the conclusion is reached that the best definition of income for both theoretical and practical use, is a flow of commodities and services through a period of time. Income definitions in terms purely of services or of psychic satisfactions, are demonstrated to be unsatisfactory.

The second part is a study of the way in which our federal income tax legislation and Court decisions theron, have solved, or attempted to solve, the problem of income definition for purposes of taxations. An analysis of the data shows the legal definitions of income to be, receipts by the taxpayer of money or money's worth, growing out of the productive process, and actually realized during the income period.

The third part of the thesis compares the theoretical with the legal definition and concludes that the points of difference, in general, are justifiable because of the necessity of bringing the definition of income for tax purposes, into harmony with the principles of taxation as expressed by authorities on the subject.

Presenter: Professor CONWAY.

LUTHER ARMSTRONG HARR was born in Philadelphia, Pa. He received the degree of Bachelor of Science in Economics from the University of Pennsylvania in 1918, and entered the Graduate School the following October, where he obtained his Master's degree in 1921. He has completed a total of 27 units, with Economics as his major, and Anthropology and History as his subordinate subjects. He has been connected with the Economics Department since 1919, and holds an instructorship there at the present time.

The title of his thesis is: "ECONOMIC FACTORS INVOLVED IN THE FORMULATION OF THE MAINTENANCE PROVISIONS OF THE CORPORATE MORTGAGE OF PUBLIC UTILITIES PROVIDING FOR THE ISSUE OF BONDS IN SERIES."

This study is limited to a discussion of the maintenance provisions of the corporate mortgage providing for the issuance of bonds in series, secured by one indenture, as affecting the following types of public utilities; electric light and power companies, electric urban and interurban railway companies, and gas companies. The maintenance provisions of mortgages representing a large number of utilities of the types under consideration were classified and analyzed to determine the standards most commonly employed.

A statistical investigation of a large number of utilities of each type was presented for the purpose of ascertaining the amounts which had been expended or set aside for the purpose of maintenance, renewals and replacements by such utilities during the years 1910 to 1921, inclusive. The results of this study were contrasted with the most commonly employed standards of maintenance as expressed in corporate mortgages.

This investigation clearly demonstrated the ineffectiveness of the great majority of maintenance provisions in corporate mortgages which do not guarantee an adequate standard of maintenance and make no provision for the adjustment of the prescribed maintenance standard to accord with changing economic conditions and variations in labor and material cost levels. The study clearly deomonstrates that elasticity is necessary in the maintenance provisions if they are to deal fairly with the public, the investor and the utility.

The difficulty of determining the amounts which should be set aside in the future, in view of the variable economic factors which are involved, was set forth, the unpredictable elements being catalogued and described. The author suggests a plan which in his judgment would furnish a practicable solution of the problem.

Presenter: Professor HUEBNER.

EDWARD LAWRENCE McKENNA was born in Brooklyn, N. Y. Columbia University conferred upon him the degree of Bachelor of Arts in 1913 and the following year the University of Illinois conferred upon him the degree of Master of Arts. He entered the Graduate School in 1917 with Economics as his major subject. He has a total of 32½ units, 12½ of which were transferred from the University of Illinois. Since 1917 he has been an Instructor here in Insurance.

The title of his thesis is: "STATE INSURANCE OF LAND TITLES IN THE UNITED STATES."

The purpose of this thesis is to inquire into the extent of the business of state insurance of land title in the United States.

In nineteen states a system of registration of title has been set up side by side with the existing system of the recording of deeds. The purposes of this system, which is known as the Torrens system, are three. (1) To simplify and cheapen the transfer of land. (2) To establish an indefeasible title to land. (3) To indemnify by means of an insurance or indemnity fund, those who may be injured by the operation of the system of registration.

The writer concludes that Torrens laws have had a very slight measure of success in the United States. A very small proportion of land titles are registered. There is doubt whether the laws are constitutional. There is question whether the laws can establish their real object, which, in effect, is to relieve purchasers of the necessity of search of title. Torrens laws do not simplify the transfer of land, nor do they cheapen it so far as the original registrant is concerned. Torrens certificates are not generally acceptable as evidence of title when land is used for collateral on loans. The insurance fund provisions of the law are open to much objection.

The laws are an element of cost to the taxpayer rather than a source of revenue to the state.

Presenter: Professor WILLITS.

GLADYS LOUISE PALMER was born in Philadelphia, Pa. She received the degree of A.B. from Barnard College in 1917. She entered the Graduate School in the fall of 1922, and has majored in Economics. During the year 1922-23 she held a Pepper Fellowship in Economics. She is credited with 29½ units of work, 13 of which are from Bryn Mawr College and 2 of which are from Columbia.

The title of her thesis is: "LABOR RELATIONS IN THE LACE AND LACE CURTAIN INDUSTRIES IN THE UNITED STATES." (With emphasis on the historical and economic background.)

This is a study of industrial relations in an old textile industry, but recently transplanted to this country under tariff protection. In this industry, dependence on tariff protection and on style changes has accentuated the seasonal irregularity of employment, so that long periods of depression and unemployment have resulted. The instability of employment, together with the high degree of specialization in the skill required of the lace and lace curtain weavers, has given rise to a strong craft union. The union has sought security of employment by protecting the present occupants of jobs against newcomers, by seeking high wages and unemployment insurance, and by securing joint control of working conditions.

The most important contribution of this study is the interpretation of labor relations in terms of the economic history and factors of the industry. A second contribution is the detailed analysis of the union's control of the labor supply, the development of the wage-scales, and collective bargaining on shop rules, from unpublished sources of information. Thus, manuscript records which go through thirty years of the union's history are preserved to labor literature. In addition, the analysis of the evolution of shop rules is not only new in the history of this industry, but is new in its emphasis on the importance of customary privileges in labor relations.

Presenter: Professor WILLITS.

ALFRED HECTOR WILLIAMS was born in Horatio, Pa. He received the degree of Bachelor of Science in Economics from the University of Pennsylvania in 1915 and entered the Graduate School that same year with Economics as his major subject. In 1916 he received the degree of Master of Arts. He has a total of 29 units. He is an instructor in the Wharton School.

The title of his thesis is: "A STUDY OF THE ADEQUACY OF EXISTING PROGRAMS FOR THE TRAINING OF JOURNEYMEN MOLDERS IN THE IRON AND STEEL FOUNDRIES OF PHILADELPHIA."

In the foundry industry throughout the United States apprenticeship has declined until today the problem of training journeymen molders has been acute. This thesis presents the results of an analysis of the situation in Philadelphia.

A study of the methods of operation and types of product in thirty-two foundries employing eighty-five per cent of the workers in the community shows that there is an especial need in Philadelphia for skilled craftsmen because the products are diversified in form and produced in small quantities without the aid of much mechanical equipment. It was found that fifty per cent of the foundries were doing no training whatever; that the ratio of trainees to journeymen was below the standard that formerly prevailed, especially in those branches of the trade which require the greatest skill; that the program was inadequate in method as well as numbers; and that little coöperative effort had been put forth to provide ample facilities for training.

It was concluded that reliance must be placed upon the traditional apprenticeship system for the supply of skilled workers in certain branches of the trade; that in others the helper system of production could be properly adapted. The essentials of a plan of coöperation among foundrymen were formulated and presented.

IN EDUCATION

Presenter: Professor WOODY.

ARTHUR WESLEY FERGUSON was born in Philadelphia, Pa. He received the degree of B.S. from the University of Pennsylvania in 1912, and the degree of Master of Arts from Lafayette College in 1920. He entered the Graduate School in October, 1921, with Education as his major subject. He held a Harrison Fellowship in Education during the year 1922-23. He has a total of 29 units to his credit, all of which were completed at this University.

The title of his thesis is: "THE PROFESSIONAL STAFF OF STATE DEPARTMENTS OF EDUCATION."

This dissertation is a study in state administration of education. It is a survey of the present status of the professional staff of the state departments of education in Massachusetts, Connecticut, New York, New Jersey and Pennsylvania. The professional staff is a group of experts who by training and experience are qualified to assist the superintendent of public instruction in his task of supervising and directing a state school system.

The origin and development of the staff, as a factor in state administration of education, is traced, for the country at large, for the period 1900 to 1923. Then the organization of the department of education, in each of the five states studied, is described, followed by a statement of the functions performed by each division and bureau in these organizations. Certain facts concerning the professional personnel are next presented. These facts deal with the method of appointment, qualifications, term of office, actual tenure, age, education, position held prior to entering state department of education and salary.

Following this statement of personal facts is a description of the professional staff officer at work. His activities, in the office and in the field, are analyzed. In conclusion a critical estimate is given of the practice in Massachusetts, Connecticut, New York, New Jersey and Pennsylvania, as regards the organization and functioning of the professional staff attached to the state department of education.

The study reveals a phenomenal development in state departments of education since 1900, as regards the size of the staff, the number of functions performed, and the cost of supporting these enlarged activities. The investigation of the five states shows that, so far as they are concerned, this expansion has been in accord with a definite philosophy and program of state educational administration.

Presenter: Professor WOODY.

ZORA KLAIN was born in Norway, Maine. He received the degree of A.B. from Clark University in 1912, and of A.M. from Pennsylvania State in 1917. He entered the Graduate School in the fall of 1922. He has a total of 46 units to his credit, 26 of which were completed at this University, and 20 at Pennsylvania State and Johns Hopkins. Education is his major and English his subordinate subject. During the present year he held a Harrison Fellowship in Education.

The title of his thesis is: "QUAKER CONTRIBUTIONS TO EDUCATION IN NORTH CAROLINA."

This study deals with the efforts made by the Quakers of North Carolina to promote education within their respective communities. Some space is devoted to the origin and growth of Quakerism in North Carolina since 1663, and to Quaker educational ideals and practices.

The origin, development, and life careers of Quaker schools and their influence within the North Carolina Yearly Meeting are traced in detail. It is shown that many of the Quaker schools were merged into public schools after 1870. Considerable space is devoted to the origin and growth of the New Garden Boarding School and to its gradual merging into Guilford College. Some space is also given over to Quaker first-day schools, the establishing of libraries, the reconstruction work of the Baltimore Association of Friends among the North Carolina Quakers, the education of women, of the poor, of negroes and Indians.

The manuscript records and other source material relating to this subject indicate clearly that the Quakers of North Carolina sponsored education. Their contribution to education is significant not merely because of the schools they established but more because of their attitude toward education, of their example in establishing schools, and of their active stimulation of community interest in schools.

Presenter: Professor WOODY.

MILLARD LESLIE LOWERY was born in Monroeville, Ohio. The degree of Bachelor of Arts was granted him by Dennison University in 1908, and that of Master of Arts, in 1909. He received the A.M. degree from Columbia in 1914, and entered the Graduate School in the Fall of 1917. He was the holder of a Half University Scholarship in Education during 1917-18, and held a full scholarship the following year. Educational Administration has been his major field, and the History of Education and English have been his subordinate subjects. He has completed 31 units of work.

The title of his thesis is: "CERTIFICATION OF HIGH SCHOOL TEACHERS."

This study has three purposes: To tabulate the secondary school certificate requirements made by the various states; to set forth the tendencies and differences that exist in those requirements; and to suggest a general plan for high school teacher certification.

In carrying out the first purpose, the requirements were tabulated, under various headings, from the state bulletins on certification, and were approved or corrected by the state education offices. From these in turn were derived the general tables upon which is based the discussion of tendencies and differences in practice. Fulfilment of the third purpose involved an investigation into qualifications of teachers and, therefore, of the principle of fitness; this theoretical basis was combined with the practical basis in order that standards of high school teacher certification might be set up. These standards differ for senior high school and junior high school teachers. They relate to academic preparation, professional preparation, duration of certificates, persistence or renewability, and to validity, i. e., the type of high school and subjects for which they are valid. Permanent status (the life certificate) is made dependent upon graduate study in addition to satisfactory experiences of five, six, or seven years.

IN ENGLISH

Presenter: Professor WEYGANDT.

JOHN ST. MARK LONGAKER was born in Newport, Ky. He received the degree of A.B. from Lenoir College in 1919, and entered the Graduate School in the fall of that same year. He has completed 29 units of work with English Literature as his major subject, English Philology and American Literature as his major subordinate subjects. He has held an Instructionship in this University from 1920 to date.

The title of his thesis is: "THE DELLA CRUSCANS AND WILLIAM GIFFORD: THE HISTORY OF A MINOR MOVEMENT IN AN AGE OF LITERARY TRANSITION."

In the verse which appeared in the papers during the last decades of the eighteenth century we can see many of the tendencies of the fast developing current of romanticism. Prominent among the writers of verse which appeared in the London papers during this period was a group of poets called the Della Cruscans. The group had its origin in a drawing room in Florence. Around the table of Mrs. Piozzi, who was steeped in the tradition of the French salon, gathered Robert Merry, William Parsons and Bertie Creatheed. After the members of the group had returned to London, the Della Cruscan manner of writing and the affectations of the coterie were seized upon by many who had been enthusiastic admirers of the verse which had been sent from Florence. The columns of *The World*, *The Oracle*, and of several other papers were filled with a new supply almost daily. The verse breathed the laughter and superficialities of the drawing-room; it was light, free, and unrestrained to the point of effusiveness. The emotional quality of it was far different from the precise quality of the poetry of the age of classicism. When the interest and enthusiasm of the readers and writers of this verse were at their height, William Gifford broke out in satire against the Della Cruscan school. The two satires, *The Baviad and Maeviad*, proved to be very effective. They were not necessarily a retarding force to the development of romanticism as it was being expressed through the newspaper verse; they were rather a shaping influence on that development.

Presenter: Professor WEYGANDT.

CHARLES WILLIAM MEADOWCROFT, JR., was born in Philadelphia, Pa. He received the degree of A.B. from this University in 1905, and entered the Graduate School in 1906. His major is English Literature, and English Philology and Modern European History are his subordinate fields. He received the degree of A.M. in 1911. He has completed 24 units of work. He is now head of the department of English at the Frankford High School.

The title of his thesis is: "Eden Phillpotts and English Peasant Drama."

Peasant Drama, it is held in this thesis, deals with people of the lower class who have a personal interest in the land. Only those plays that are the product of conscious artistry and the desire to portray a people in literature are considered.

It is shown that, although the peasant has been in English drama since its inception, the first serious treatment of the peasant in that drama is the particular contribution of the late nineteenth century. With the exception of a single play by Sir Arthur W. Pinero, Thomas Hardy's plays are considered to be the earliest to bring into English drama a serious treatment of country folk.

The thesis concerns itself chiefly with the Dartmoor peasant plays of Eden Phillpotts. He is shown to be the first to present the English peasant in a naturalistic manner. Phillpotts' plays are studied not only intensively, but in comparison with other notable writers in this field, such as Thomas Hardy, Hall Caine, Lascelles Abercrombie, and W. W. Gibson.

Presenter: Professor Weygandt.

HAROLD WILLIAM SCHOENBERGER was born in Siegfried, Pa. He receive the degree of A.B. from Muhlenberg College in 1909. He entered the Graduate School in October, 1912, and has majored English Literature, taking American Literature and English Philology as subordinate subjects. He received the degree of A.M. from the University of Pennsylvania in 1915. He has a total of 35 units to his credit, 3 of which were completed at State College. During 1922-23 he held a Harrison Scholarship in English, and he held a Harrison Fellowship in English during the past year.

The title of his thesis is: "American Adaptations of French Plays on the New York and Philadelphia Stages from 1790-1833."

The early American playwrights drew from three foreign sources, British, French, and German. About 140 early American plays have been examined for their French sources. Thirty-four, or about one-fourth, of these plays have been proved to be adaptations from French dramas. The French sources of twelve plays have been identified for the first time in this thesis. In the case of eight others, their French relationship, hitherto only vaguely indicated, has been finally established. The French sources of the remaining twelve plays have been discovered by former writers. In each case the French Original has been compared with its adaptation.

It was in the melodrama of the period that the French influence was most apparent on the American stage. Fully one-half the plays considered in this study are melodramas in the French form. In its blending of comedy with tragedy, in its elaborate mise en scene, and in its general freedom from restraint, the melodrama is of importance as leading to the greater romantic school which followed.

Presenter: Professor Weygandt.

ROBERT ERNEST SPILLER was born in Philadelphia. He received the degree of A.B. from the University of Pennsylvania in 1917. He completed 4 units of graduate work as a senior, and was granted his Master's degree in 1920. English Literature is his major, and English Philology and American Literature his subordinate subjects. He held a Harrison Fellowship in English during the year 1919-20. He is credited with 24 units.

The title of his thesis is: "Impressions of England. The American Traveller During the First Half Century of Independence."

The object of this study was to assemble all comment, official and otherwise, on English life, of all Americans who visited England during the first half century of independence, and to classify it according to motives for travel and resultant impressions. Of approximately a thousand such travellers, less than half left any writing and only about one hundred and fifty left direct comments of any extent on their travels. Over thirty professed travel books, several of them still in manuscript, were consulted, as well as the journals, letters, biographies, autobiographies, and manuscript collections of the Americans who were in England during the period. The most important sources were the catalogues and collections of fifteen libraries, the publications of state and national historical societies, the files of early American magazines, and the records of the State Department at Washington.

It was then discovered that among motives for travel the dominant ones were the necessity of diplomatic missions, the desire for the study of science and art, the religious or missionary spirit, the establishment of commercial relationships, and the literary study of English life in terms of gossip and criticism for American consumption. The pleasure seeking tourist motive was incidental to other impulses during the entire period, but was present in the majority of travellers, and became pronounced about 1835 when travel books were more popular. The general attitude of the Americans was one of cultural dependence and reverence, and political or other hostility was slight even among most of the official envoys.

Two main forces led toward intellectual autonomy: the naturally developing estrangements of time and distance, which slowly made it almost possible for the American to view England as a foreign country, and the constantly reiterated demand, from Jefferson to Cooper, that America assert her national personality as well as her political independence. There was much progress toward this autonomy, but no fulfillment, during the period under consideration.

IN GERMANICS

Presenter: Professor SHUMWAY.

CARL ALBERT HELMECKE was born in Braunschweig, Germany. In 1912 the University of Michigan conferred upon him the degree of Bachelor of Arts and in 1913 they awarded him the degree of Master of Arts. He entered the Graduate School in 1918 holding a Harrison Fellowship in Germanics. He has completed the total of 24 units, 12 of which were transferred from the University of Michigan.

The title of his thesis is: "BUCKLE'S INFLUENCE ON STRINDBERG."

Among the many authors referred to and discussed by Strindberg, the English writer, Buckle, figures quite prominently. The purpose of this thesis is to prove the existence of the influence of Buckle on Strindberg.

We are concerned with Strindberg's reaction upon coming in contact with the ideas of Buckle and with the manifestation of this reaction in Strindberg's writings. During his early life, he struggled to find himself and discovered in Buckle the justifications for the views he himself held. He found here the idea that religious teachings are unable to improve people who are not already prepared for them, an insistence upon the reduction of all human affairs to the natural law, an attack upon the theological view of history, and a contempt for the results of metaphysical methods; he agreed with these ideas because of the experiences he had had with his own people. He found that Buckle had turned against the conditions in England much in the same way as he had turned against conditions in Sweden. He saw that in Buckle his own views were expressed in a tangible and logical form. So he was carried away by them. Gradually he went beyond Buckle under the influence of other, similar writers who had a program more advanced than that of Buckle, but he adhered to him to the very end in some of the most fundamental views which he had first learned from Buckle.

IN HISTORY

Presenter: Professor McKINLEY.

ISAAC S. HARREL was born in Sunbury, N. C. He received the degree of A.B. from Trinity College in 1916, and of A.M. from the same institution in 1917. He entered the Graduate School in 1920, with American History as his major. During the past year he has held a Harrison Fellowship in History. He is credited with 35 units, 9 of which were completed at Trinity College.

The title of his thesis is: "THE LOYALISTS OF VIRGINIA; AN ECONOMIC STUDY OF THE REVOLUTION."

During the American Revolution Virginia was confronted with the problem of financing the war. The property of Loyalists and debts due British subjects were regarded as legitimate sources of revenue. In Virginia the imperial land policy, the condition of public credit, the indebtedness of the aristocracy and the indiscreet course of the Royal Governor impelled the propertied class to join the patriot party. The number of Loyalists in Virginia was relatively smaller than in any other state and the sums realized from the sale of sequestered property was not large. This study examined for the first time the relation of confiscation to war finance.

The provisions of the Treaty of Peace for partial restitution of sequestered property and payment of all bona fide debts contracted before the war were unpopular; efforts of Loyalists and creditors to secure the benefits of the Treaty in Virginia were futile. The absence of a central government to compel the fulfillment of treaty obligations gave the new nation difficulty abroad. The Federal Constitution of 1787 provided for trial in the Federal Courts of all cases arising under treaties. In these courts the exiled Loyalists and British creditors secured justice.

Presenter: Professor SIOUSSAT.

SETH SHEPARD McKAY was born in Holland, Texas. He received his Bachelor of Arts degree from the University of Texas in 1912, and his Master's degree in 1919. He entered the Graduate School in 1921, with American History as his major subject. He has completed 24 units. During the past year he has held an instructorship in American History at Ohio State University.

The title of his thesis is: "MAKING THE TEXAS CONSTITUTION OF 1876."

This is a study in the state constitutional history of the reconstruction period following the Civil War in America. The making of a new constitution in Texas, the state constitution which is still in force in 1924, was the final step in the eradication of the so-called "carpet-bagger rule" in Texas.

The first chapter reviews briefly the preceding state constitutions and summarizes the Republican rule of 1870 to 1872. The mistakes of this party, including the "obnoxious acts" of the Twelfth Legislature, caused the overturn of its control, and the Democratic readjustment included the making of a new constitution. The second chapter describes the demand for a new constitution and the victory of the faction which advocated a convention as preferable to a commission to submit to amendments. The third chapter describes the convention. The delegates had in mind the "hard times" following the Civil War and made their motto "retrenchment and reform." The constitution formed forbade further state aid to immigration, provided small salaries and short terms for public officials, permitted unrestricted suffrage for male citizens of age, and made a very inadequate provision for public education, and favored the agricultural interests above all others. The fourth chapter describes the campaign for ratification. The people were urged to accept the new instrument because it made government cheaper. Efforts to amend the constitution and attempts to provide for a new constitutional convention have steadily increased during the last three decades.

Presenter: Professor HOWLAND.

WILBUR CLAYTON PLUMMER was born in Hagerstown, Md. He was granted the degree of Bachelor of Arts by Lebanon Valley College in 1910, and received his Master's degree from this Institution in 1922, having entered as a regular student in February, 1921. His major subject is American History. He has a total of 28 units completed. At the present he holds an instructorship in Economics in the Wharton School.

The title of this thesis is: "THE ROAD POLICY OF PENNSYLVANIA."

The thesis is a historical study of roads and road administration in Pennsylvania from the earliest settlements to the present time. In the treatment of the subject, the chief characteristics of the road practice are presented according to periods, emphasis is placed on change and development in policy, and an attempt is made to account for such change and development. The present day tendencies in regard to road affairs are given as a conclusion to the study.

The present road policy, which is a recent development, dating from 1903, stands in marked contrast to the practice of the previous two and a quarter centuries. Prior to 1903, the main responsibility for roads was allowed to rest on the local governments. Since that date great strides have been taken in the direction of centralization.

At the present time, Pennsylvania is engaged in a great road construction program. $83,500,00.00 have been spent on new construction within four years. There are thousands of miles of durable, scientifically improved highways in the state at the present time which are carefully maintained. With the increasing use of the passenger automobile and motor truck, the normal expectancy seems to be that the good roads movement will continue, and may, perhaps, increase in intensity.

Presenter: Professor HOWLAND.

RICHARD HARRISON SHRYOCK was born in Philadelphia, Pa. He was granted the degree of B. S. in Education by the University of Pennsylvania in 1917, in which year he entered the Graduate School. His major is History, in which he held a University Scholarship during the first term of the year 1917–18, a Harrison Scholarship during the second term of the year 1918–19 and a Harrison Fellowship during the year 1920–21. His subordinate fields are English and Philosophy. He has a total of 24 units.

The title of his thesis is: "THE UNION AND SECESSION MOVEMENTS IN GEORGIA: 1846–50."

The secession movement of 1850 in the South found Georgia the "Keystone State" of that section, both because of her central geographical position and because of her relative economic prosperity. No policy of secession could succeed without her support and this was not likely to be given, save as a last resort against aggression, so long as her prosperity continued within the Union.

When the controversy waged between the North and the South over slavery became acute in 1849 a movement for Southern political unity, originating in South Carolina, gained some headway within the Democratic party in Georgia, in spite of a traditional economic and social rivalry obtaining between the two states. So soon as it became apparent, however, that the North was willing to compromise the slavery issue, and that the Southern Movement was intended to become a Secession Movement, this latter move was completely repudiated in Georgia by both the political parties.

At the same time the people of Georgia, in convention assembled, declared to the North that they would not tolerate further aggression upon the institution of slavery. This warning was approved and supported throughout the South and was seriously heeded in the North. Hence the conservatism and patriotism of the Southern Keystone State did much to check the secessionist extremists in her own section, and something to check the anti-slavery extremists in the North. Both of these achievments were of real service in the preservation of the Union.

Presenter: Professor LINGELBACH.

RAYMOND JAMES SONTAG was born in Chicago, Ill. He received the degree of Bachelor of Science from the University of Illinois in 1920 and the following year he received the degree of M.A. from the same University. He entered the Graduate School in 1922, holding a Harrison Fellowship during the years 1922–23 and 1923–24 in History, his major subject. He has 27½ units, 10½ of which were transferred from the University of Illinois.

The title of his thesis is: "DIPLOMATIC FACTORS IN THE ESTRANGEMENT OF ENGLAND AND GERMANY, 1890–1901."

The opening of the archives of Germany, Austria, and Russia makes both possible and necessary a revaluation of the pre-war system of alliances. The new evidence shows that during the closing years of the nineteenth century England made repeated attempts to effect an alliance with Germany. Berlin diplomatists were also convinced of the wisdom of such an accord. They turned aside the British alliance proposals of 1898–1901, however, because of the belief that German friendship would command a higher price at a later date. The conviction was general in Germany that England was a decadent state incapable of defending its empire unaided against the encroachments of France and Russia, and that eventually Britain must unite with the Central Powers on any terms which the latter might propose. In the end British statesmen became convinced that an alliance with Germany was not to be obtained at a reasonable price and sought a *rapprochement* with France. The thesis shows that the encirclement of the Central Powers, which Germany held to be the chief cause of the war, was the result of the ineptitude of the diplomacy of the German Foreign Office in large part.

The conclusions of this study are based largely upon an examination of the diplomatic correspondence preserved in the German Foreign Office.

Presenter: Professor LINGELBACH.

AMOS ELIAS TAYLOR was born in Glenville, Pa. He received the degree of Bachelor of Arts in 1915 from Pennsylvania College. In 1920 the University of Chicago conferred upon him the degree of Master of Arts. He entered the Graduate School that same year and has done his major work in History. He has a total of 28 units, 12 of which were transferred from the University of Chicago. He is an Instructor in Finance in Wharton School.

The title of his thesis is: "THE HISTORY AND DEVELOPMENT OF THE ECONOMIC BLOCKADE: A NEW FACTOR IN INTERNATIONAL RELATIONS."

The extraordinary development of the economic blockade in recent years is directly identified with the history of the Great War. Its origins, however, date as far back as the time of Grotius, while the wars of the Napoleonic period brought it into prominence as a new and practical economic weapon.

At the beginning of the World War the repudiation of the Declaration of London opened the way for the introduction by England of a series of "blockade" measures against the Central Powers. It soon became evident that under modern method of warfare entire nations became organized units for war in which virtually all workers were combatants and all important articles of commerce became contraband. The Allies were aided by peculiar geographical factors, and finally, by the entrance of the United States into the war, the economic blockade of Germany was perfected. In the post-war reconstruction Article 16 of the League of Nations Covenant formally recognized the potentialities of economic coercion.

By way of historic background the development and significance of the Napoleonic measures, the trend of official opinion in England during the nineteenth century, and the Civil War Cases, together with European reaction towards the blockade of the Confederate ports, constitute the introductory part of the work.

IN PHYSICS

Presenter: Professor GOODSPEED.

KALMAN HEINDLHOFER was born in Pecs, Hungary. He received the degree of M.E. from the University of Zurich in 1906, and that of M.S. from Carnegie Institute of Technology in 1915. He entered the Graduate School in November, 1921, and has made Physics his major subject, with work in the subordinate field of Mathematics. He has a total of 24 units to his credit, 18 of these are from the University of Zurich and Carnegie Institute.

The title of his thesis is: "CRYSTAL STRUCTURE OF HARD STEEL."

Iron, containing a small amount of carbon, is called steel. Steel has the remarkable property of assuming great hardness when quenched from a certain temperature.

While there have been numerous views, no accurate knowledge has existed on the ultimate reason for hardness of steel and the object of the present investigation is to explain the cause of this condition. The explanation is based on the X-ray spectra of hard steel which were observed, and which revealed that some of the iron atoms are replaced by carbon atoms in such a way as to disturb the symmetry of the original arrangement of the iron atoms.

IN POLITICAL SCIENCE

Presenter: Professor YOUNG.

CLARENCE NEWELL CALLENDER was born in Merion, Pa. He received the degree of B.S. in Economics from the University of Pennsylvania in 1909, and he entered the Graduate School in 1913. The degree of Master of Arts was granted him in 1917. His major subject is Political Science. He has a total of 28 units to his credit, all of which have been completed at this University. At the present time he is Assistant Professor in Business Law in the Wharton School.

The title of his thesis is: "THE SELECTION OF JURORS, A COMPARATIVE STUDY OF SELECTION AND THE PERSONNEL OF JURIES IN PHILADELPHIA AND OTHER CITIES."

One of the serious problems in the administration of justice in large cities is that of securing competent jurors. The qualificationss and the methods of selection are prescribed by statutes, but the actual character of the personnel is determined in each community by the human agencies which operate the system.

The methods used and the results obtained differ considerably. The Philadelphia method is essentially a random choice by the judges and sheriff. Elsewhere means have been devised for eliminating the obviously unfit, and in a few jurisdictions attempts have been made to select jurors with reference to such positive qualities as intelligence, education and business experience.

This thesis critically examines the different systems, evolves a theory of jury selection and evaluates the character of the jury personnel in accordance with the theory established. It then proceeds to a critical analysis of the Philadelphia system and suggests certain changes, among which are: the placing of the responsibility of selection in the hands of either an individual or a small board; a more extended investigation of the competency of proposed jurors; and the establishment of a central administration whereby jury material may be more fully utilized.

Presenter: Professor Young.

FLETCHER SUMMERFIELD MANSON was born in Petersburg, Va. He received the degree of A. B. from New York University in 1915. He entered the Graduate School in February, 1920, where he received the degree of A. M. in February, 1921. Political Science is his major subject, and American History and Education his subordinate subjects. He has completed 34 units of work, all of which were done at this University. At the present time he is connected with the Y. M. C. A. in Germantown.

The title of his thesis is: "Liberia and Her International Relations."

The colony of Liberia was founded on the West Coast of Africa in 1822 by the American Colonization Society with the aid of the United States government. Liberia began her international existence before she was prepared to undertake such a task; and as a result of this premature step, it has been difficult for the little republic to maintain her independence without the interposition of the United States.

Liberia's international relations may be summed up in two words—boundary disputes and foreign loans. England and France have taken the advantage of the weakness of the Republic, and have extended their colonial possessions in Africa, at the expense of Liberia. At three different times (1871–1906–1912) in her history Liberia has contracted foreign loans for the development of her natural resources; but as a result of financial inexperience, and fraud, these loans have been (and are destined to be) the source of troubles in the future.

Notwithstanding all of these difficulties through which Liberia has passed, the experiment has not failed. It is a miracle how these freed slaves have been able to maintain a republican form of government without a revolution. The Government has never been subverted, nor has the will of the people been defeated at the polls. Liberia is exercising a civilizing influence over more than 2,000,000 of its native population, and stands as a beacon light of Christian civilization in a dark continent. The high political ideas and principles which she represents, the ardor and fidelity with which she has maintained them for nearly three-quarters of a century against European opposition and in the midst of an overwhelming number of their African kinsmen, entitle her to the sympathetic consideration and good-will of all liberty-loving nations.

IN PSYCHOLOGY

Presenter: Professor Twitmyer.

CHARLOTTE EASBY was born in Philadelphia, Pa. She received the degree of A. B. from this University in June, 1921, and entered the Graduate School that summer. She took her Master's degree here in 1922, with her major in Psychology. She has a total of 32 units. She had held the position of Clinic Teacher in the Psychology Department since 1921.

The title of her thesis is: "Tests and Norms at the Six-Year Level of Competency."

For the purpose of the establishment of certain norms or standards, five hundred children of the 1A and 1B grades were given a battery of psychological tests, consisting of three performance tests, the abbreviated Binet-simon Series, the Memory Span tests, and an exploration of school proficiency. On the basis of the resulting quantitative scores, a series of tables was constructed which may be used as diagnostic standards for the six-year performance level.

These tests and standards, when accompanied by careful physiological examinations, constitute a practical means of classifying, according to their mental capacity, normal children upon their entrance into first grade. The use of such psychological tests in examinations and the interpretation of their results form an excellent basis for preventive measure in the field of mental hygiene. The six-year level proves to be a satisfactory one for the analysis of the competency necessary for future normal academic progress. In the diagnosis of atypical or abnormal children, this series of tables provides a standard of comparison by which the degree of retardation may be judged. At the six-year level, the criterion is congenital competency which displays the potentiality for the acquirement of proficiency.

Presenter: Professor TWITMYER.

ROBERT BINES WOODWARD HUTT was born in Glen Mills, Pa. He received the degree of B.S. from this University in 1909. He entered the Graduate School that fall, and was granted the Master's degree in 1911. His major subject is Psychology. He is credited with a total of 37 units.

The title of his thesis is: "THE USE OF COLOR CUBES AS A TEST OF IMAGEABILITY.'

The use of color cubes as a test of imageability, in accordance with the procedure developed in the Psychological Clinic of the University of Pennsylvania, reveals comparative competency and proficiency in the analysis and synthesis of colored patterns and in the retention and reproduction of the same.

In general, the time required for the successful completion of the test, when analysis of the performance reveals no complicating extraneous factors, permits the placing of the reagents in definite rank of comparative superiority in accordance with the norms established by this present study of some 1200 cases ranging in age from five months and six months to fourteen years and five months, and in grade from the first to the eighth inclusive.

This test, being narrow in its scope, does not yield data sufficient for independent diagnosis as to general competency but is significant when used in conjunction with an adequate number of other tests measuring other abilities and when the elicited performance is actually observed and analyzed by a competent Clinician.

Presenter: Professor TWITMYER.

ALICE MARGARET JONES was born in Philadelphia, Pa. She received the degree of B.S. in Education from this University in 1918, and entered the Graduate School in 1921. She held a University Scholarship in Psychology during the year 1921–22, and was granted the Master's degree in June, 1922. She has completed 34 units of work, all of which are in her major field of Psychology. During the past two years she has been the Recorder of the Psychological Clinic.

The title of her thesis is: "AN ANALYTICAL STUDY OF A GROUP OF SUPERIOR CHILDREN."

One hundred and twenty children (the upper one percentile) were examined with performance tests, the abbreviated scale of the Terman revision of the Binet Tests, and tests of school proficiency; height and weight indices were taken, and inquiry made concerning the cultural and economic status of the homes, and recreational and other interests of the children.

Children of the superior group show marked acceleration in growth, as determined by height and weight indices; with few exceptions they come from homes where the cultural and economic status is well above average. They show excess proficiency with the entire battery of tests (although the median age for the group is nine years nine months, the median test scores approximate those at the fifteen-year level). They are characterized by initiative, originality, excellent social orientation, and a wide range of interests.

This exploratory investigation gives conclusive evidence that the superior child varies as greatly from the mode as does the retarded or deficient child. It is vitally important that the superior child be made the subject of intensive study, and that an educational program be devised which will adequately develop his latent possibilities.

Presenter: Professor TWITMYER.

FREDERICK WARD NINDE was born in Detroit, Mich. He received the degree of Bachelor of Arts from the University of Michigan in 1908, and the degree of M.D. from the same University in 1912. He entered the Graduate School in 1919 and took his Master of Arts degree in February of 1922. He has a total of 30 units. His major is Psychology.

The title of his thesis is: "THE APPLICATION OF THE AUDITORY MEMORY SPAN TEST TO TWO THOUSAND INSTITUTIONAL EPILEPTICS: A STUDY IN RELATIVE ASSOCIABILITY."

The study which forms the basis of this thesis represents a systematic effort to determine the relative mental status of the epileptic as he is found in institutions throughout the United States. The method employed was the application of the auditory memory span tests, it being chosen because of its recognized value as a measure of mental ability and its peculiar adaptability to the requirements of the pathological subjects. The test was applied individually to two thousand cases. The data thus obtained have been correlated with those of similar studies of normal individuals, and the findings are presented in full in both tabular and diagrammatic form. The present study shows that the epileptic subject possesses a mental equipment but approximately one-half that of the normal individual, while a considerable number fall within the feeble-minded category. These results accord with the findings of other investigators in the same field. The author departs from traditional theories, as well as current medical opinion, in the interpretation of these facts, and attributes the frequent concomitance of epilepsy and feeble-mindedness not to a causal relationship between the two, but to a factor or factors underlying both.

Presenter: Professor TWITMYER.

HENRY SHERMAN OBERLY was born in Decatur, Ill. He received the degree of A.B. from Muhlenberg in 1920, and entered the Graduate School during the following Summer Session, with Psychology as his major subject. He received the degree of A.M. in 1922, and has now completed a total of 31 units. He has held an instructorship in Psychology from 1920 to date.

The title of his thesis is: "THE RANGE FOR VISUAL ATTENTION, COGNITION AND APPREHENSION."

The range for visual attention has been given in the literature heretofore as the grasping of from four to eight simultaneously presented objects. This thesis presents the results of an experiment similar to former "range of attention" experiments, with the addition, however, of introspective reports from the observers. Six observers were used, who gave 250 reports on each value of the stimulus dots, from two to twelve in number, presented on small white cards with an exposure of 40 sigma. The introspective reports revealed at least three methods of determining judgments: immediate, grouping or counting. These introspective characterizations are the same as the systematic categories attention, cognition and apprehension. The statistical limen or threshold for each observer was found for each of the three systematic categories.

As a result of this investigation, it is found that "attention" is characterized as an immediate process, in which all sensory elements have an equal degree of clearness. "Cognition" is an immediate process in which the sensory elements may have either an equal or a different degree of clearness. "Apprehension" is characterized as the obtaining of knowledge of the stimulus in terms of any sort of mental process.

The values of the threshold for the observers are greater as one compares attention, cognition and apprehension.

Presenter: Professor TWITMYER.

LEON DUPRE STRATTON was born in Camden, N. J. He received the degree of B.S. in Chemistry from the University of Pennsylvania in 1909, and his Master's degree in 1917. He has made Psychology his major subject for his Doctor's degree and has completed a total of 32 units. He has held an instructorship in Chemistry in Drexel Institute since 1918.

The title of his thesis is: "A Factor in the Etiology of a Sub-Breathing Stammerer. Urinary Creatine and Creatinine as an Index of Metabolism."

This investigation has to do with the correlation of the speech performance of the stammerer with the excretion of these components of the urine. These components were chosen because they are the least influenced by changes in diet, and have been proven to be indicative of a kind of metabolism of the body.

A long preliminary study was made to determine whether the amounts excreted at a given time were significant; it was found that they were not. Other chemical determinations were carried out but none were found significant other than with the components mentioned. By the preliminary study the norm for the individual was established. This was found to be far below the norm for non-stammerers.

A scale of speech was worked out and it was found that the scale followed closely the excretion of these bodies. Training for the correction of stammering was given and daily analyses made of the urine over an extended period of time. The excretion of these bodies was increased and the stammering was much improved; excretion was increased and speech improved by thorough purging also.

In sub-breathing stammerers, when the urinary creatine and creatinine are low, it may be concluded that an important factor in the etiology of the stammering is faulty metabolism and this must be corrected to effect a cure.

IN ROMANICS

Presenter: Professor Beck.

ISADORE LEVINE was born in Bobruisk, Russia. He received the degree of Bachelor of Arts from the University of Pittsburgh in 1921 and the degree of Master of Arts from the same University the following year. He entered the Graduate School in 1921. His major subject is Romanics. He has a total of 33½ units, 13 of which were transferred from the University of Pittsburgh. He held a University Scholarship in Romanics during the second term of 1921–22.

The title of his thesis is: "The Language of the Glossary Sangallensis and its Relation to the Language of Other Glossaries."

The purpose of the thesis is twofold. First, it seeks to establish, by means of philological evidence (analysis of the vocabulary, phonetic peculiarities, etc.), the possible place of the provenience of several glossaries. On the strength of such evidence (occurrence of certain words that are confined to Italian dialects only) one may assume that Italy was the place where our glossary was compiled.

Aside from this, the thesis endeavors to establish that a great number of Latin substrata still considered hypothetical by the Romanic Etymological Dictionary of Meyer-Luebke, are actually found in the glossaries. The existence of these words in Late Latin is proved not only by their occurrence in the old glossaries, but also by the Romance language.

IN SOCIOLOGY

Presenter: Professor Bossard.

WILLIAM CHRISTIE MACLEOD was born in Philadelphia, Pa. He received the degree of A.B. from Swarthmore in 1914. He entered the Graduate School in the fall of 1914. He has a total of 37 units to his credit, with Sociology as his major subject. During the year of 1922–23, and also during the current year he has held a Harrison Fellowship in Sociology.

The title of his thesis is: "The Origin of the State: The Problem Reconsidered in View of the Data of Aboriginal North America."

The process of the evolution of social stratification and of the class state, which is its political consequent, is a socio-psychological process, and its development is independent of any necessary correlation with economic evolution and independent of the diffusion of cultural forms. Aristocracies find the starting point of their evolution in the establishment of the office of chief by aggressive, independent and enterprising individuals; this office tends to become hereditary within a more or less narrow family circle, and the families of chiefs tend to intermarry and to become a caste possessing the prerogative of government.

The segregation of an aristocracy within a community means the complementary segregation of the body of the community as a class of commoners. The tendency of aristocracies to emphasize name and family much beyond personal worth results in the further segregation of rising commoners as a bourgeoisie.

The expropriation of the title to the land of the people, and claims on the labor and the product of the people, by the ruling class or by the king; religious sanctions of the existing order; conquest followed by the subordination of the conquered; and chattel slavery; where they evolve at all, are not conditions, but results, of the evolution of social stratification and the class state.

These candidates then withdrew and the Faculty unanimously voted to recommend them to the Board of Trustees for the degree of Doctor of Philosophy.

Degrees were duly conferred on Commencement Day, June 18, 1924.

SUMMARY OF DEGREES AND CERTIFICATES GRANTED 1923–1924

UNIVERSITY COUNCIL, FEBRUARY 6, 1924

Honorary Degrees:

Doctor of Laws	4
Doctor of Science	2
Total of Science	6

MIDWINTER CONVOCATION, FEBRUARY 16, 1924

DEGREES IN COURSE

Bachelor of Arts (in Arts and Science)	13
Bachelor of Arts (in College Courses for Teachers)	4
Bachelor of Science in Chemical Engineering	1
Bachelor of Science in Electrical Engineering	2
Bachelor of Science in Mechanical Engineering	2
Bachelor of Science in Economics	57
Bachelor of Science in Education	38
Bachelor of Science in Education (post mortem)	1
Bachelor of Architecture	11
Bachelor of Music	2
Doctor of Philosophy	5
Master of Arts	35
Master of Science	3
Doctor of Medicine	1
Doctor of Medical Science	1
Master of Medical Science	5
Bachelor of Laws	3
Doctor of Dental Surgery	8
Total	192

Certificate in Architecture	1
Certificate in Music	
Certificates in Graduate Medicine	20
Commissions in Military Science	3
Total	24

UNIVERSITY DAY, FEBRUARY 22, 1924

Honorary Degrees:

Doctor of Laws	3
Doctor of Letters	2
Doctor of Science	1
Total	6

COMMENCEMENT, JUNE 18, 1924

Honorary Degrees:

Doctor of Laws	1
Doctor of Letters	1
Doctor of Science	3
Master of Science	1
Master of Arts	1
Total	7

Degrees in Course:

Undergraduate Schools:

Bachelor of Arts (in Arts and Science)	106	
Bachelor of Science	1	
Bachelor of Science (Pre-Medical)	7	
Bachelor of Science (in Biology)	1	
Bachelor of Arts (in College Courses for Teachers)	20	
Civil Engineer	2	
Mechanical Engineer	7	
Bachelor of Science in Chemistry	5	
Bachelor of Science in Chemical Engineering	22	
Bachelor of Science in Civil Engineering	21	
Bachelor of Science in Mechanical Engineering	21	
Bachelor of Science in Electrical Engineering	18	
Bachelor of Science in Economics	513	
Master of Architecture	5	
Bachelor of Architecture	24	
Bachelor of Music	1	
Bachelor of Fine Arts	3	
Bachelor of Science in Education	127	
Bachelor of Fine Arts in Education	1	
		905

Professional and Graduate Schools:

Doctor of Philosophy	36	
Master of Arts	137	
Master of Science	7	
Master of Business Administration	6	
Doctor of Medicine	131	
Doctor of Medical Science	2	
Master of Medical Science	20	
Bachelor of Laws	55	
Doctor of Dental Surgery	221	
Doctor of Veterinary Medicine	5	
		620
Total		1525

Certificates:

In Architecture	10
In Music	12
In Oral Hygiene	35
Evening School	151
Extension School	83
Graduate School of Medicine	56
Total	347

TOTALS FOR 1923–24

Honorary Degrees	19
Degrees in Course	1717
Certificates and Commissions	371

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